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Original Articles.

PRINCIPLES OF FEEDING IN TYPHOID AND IN OTHER FEVERS.*

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ASIDE from the daily output of nitrogen in excess of its intake in the food which can be measured in the laboratory and the carbon loss, not so easily determined, the visible rapid and distressing loss of weight and strength from day to day in typhoid fever indicates how inadequate is the usual and probably any method of feeding, to meet the disturbed metabolism of energy and matter which obtains in its pyrexia of long duration.

Two methods of feeding are at present in vogue. One, the fluid diet, consisting mainly of milk, has been employed almost universally since typhoid fever was generally recognized as an entity. A second, a mixed diet, in part solid, within the past few years has been advocated by a few clinicians in this country and abroad, having a large experience in this disease. Their advocacy has been based largely upon personal clinical experience. Milk still has been the principal food stuff in the dietary, but it has been supplemented by the protein of eggs, fish and meat, and the carbohydrate and fat content has been increased by the use of cereals in the form of bread, crackers, gruels, soups (pea, bean, etc.), and by cream and butter, respectively. Their practice generally has been tempered by a wise clinical judgment in individualizing their cases, in their recognition that the employment of the diet described in *all* cases of typhoid fever would be as irrational as, in their belief, are the customary dietary restrictions in *many* cases.

It is claimed that by such a dietetic management the comfort of the patient is greatly promoted, the excessive katabolism during the course of the fever is more efficiently met, convalescence is much more rapid, that such intestinal complications as have been believed to be influenced by diet and, finally, relapses are no more, if not less, frequent than under the restricted and fluid dietary of one kind or another which has almost invariably been employed in the past half century.

It will be of interest to give in detail the dietary which has been employed by the most ardent advocates of this practice, American, English and Russian, respectively.

Shattuck's dietary[1] in the Massachusetts General Hospital consists of:

1. Milk, hot or cold, with or without salt, diluted with lime water, soda water, Apollinaris, Vichy; peptogenic and peptonized milk; cream and water, milk with white of egg, slip buttermilk, koumyss, matzoön, milk whey, milk with tea, coffee, cocoa.
2. Soups: beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash, carefully strained and thickened with rice (powdered), arrowroot, flour, milk or cream, egg, barley.
3. Horlick's food, Mellin's food, malted milk, carnipeptone, bovinine, somatose.
4. Beef juice.
5. Gruels: Strained cornmeal, crackers, flour, barley-water, toast-water, albumin-water with lemon juice.
6. Ice cream.
7. Eggs, soft boiled or raw, eggnog.
8. Finely minced lean meat, scraped beef. The soft part of raw oysters. Soft crackers with milk or broth. Soft puddings without raisins. Soft toast without crust. Blanc mange, wine jelly, apple sauce and macaroni.

The total number of cases treated by Shattuck on this principle is 241, extending over the period from 1893 to 1904.

Marsden's dietary,[2] in the Monsall Fever Hospital, England, in mild cases, without contra-indications, consists of bread and butter, milk with custard, fish with mashed potato, chicken and minced meat. The individual patient and his condition alone are considered, and "slight exacerbations of fever or occasional irregularities of the bowels are not considered indications *per se* for restricting the diet described."

Marsden's cases, as given by him, number 200, but a study of his paper shows that solid food (fish) was allowed only before defervescence in 100 instances; it was given on the day of defervescence in 36 cases, and in 64 only subsequently. Bread, custard, farinaceous puddings and similar food materials are not placed by him under the category of solid food.

Bushuyev's daily menu,[3] in the Kief Military Hospital, Russia, is as follows:

7 A.M., tea with a roll.

8 A.M., 400 cc. of soft (liquid) oatmeal, barley or wheat porridge, with butter.

9 A.M., one or two boiled eggs, soft or hard as the patient desires.

10 to 11 A.M., a glass (200 to 220 cc.) of milk with a roll, one-half a cutlet and a bit of boiled meat (160 to 168 gm.).

12 to 12.30, P.M., a plate (220 cc.) of chicken soup or a bowl of ordinary soup, sometimes with a bit of chicken from the soup, and a small cup of "kisel" (a sort of sour jelly); rarely, a little preserved fruit.

3 P.M., tea with a roll.

6 P.M., a cup of chicken or beef soup; semolina pudding or milk; a bit of chicken.

8 P.M., milk with a roll.

During the night: Coffee or tea, with milk, two to four times; coffee with cognac.[4]

In addition, the patients receive from 1 to 3 oz. of wine in the morning, and every two hours half an ounce of Stokes's mixture.[5]

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* Read before the Association of American Physicians in Washington, D. C., May, 1906.

[1] Shattuck: Journal American Medical Association, July 10, 1897.

[2] Marsden: Lancet, London, vol. i, 1900, p. 90.

[3] Bushuyev: Progressive Medicine, March, 1899, pp. 327–332; Vratch, 1898, xix, pp. 786–898.

[4] The milk is usually boiled; occasionally it is given in the form of junket.

[5] Stokes's mixture: 2 egg yolks, 50 cc. of brandy, 120 cc. of aqua aurantii florum, sugar or syrup sufficient to sweeten.

In 1895–97, 398 patients were treated on this diet by him in the Military Hospital. Bushuyev is an ardent enthusiast for the dietetic management described. He says, "Under this regimen the general condition of patients is incomparably better than when kept upon an exclusively fluid diet. The common complaints are scarcely ever heard. At breakfast, dinner and supper the patients are uncommonly wide awake. Even those who are very ill sit up in bed, beg for food, and eat with much satisfaction; only a few have to be fed by nurses. If one observes the patients at meal-times he wholly forgets that these individuals are seriously ill with temperatures above 39° C. During the first hours in the ward the patient lies in a motionless condition, failing to answer questions and refusing food. But if one succeeds in some way or another in persuading him to eat a bit of meat or cutlet or an egg, he immediately begins to show some interest in his surroundings."

He insists that every effort be made to stimulate the appetite and every care taken to avoid disgusting the patient with food brought before him. The appetite when once excited lasts usually to the end of the disease; its diminution or disappearance is a grave sign. It is unnecessary to carefully consider the proportions of albumin, fat and carbohydrates, excepting in that the food is tastefully prepared and may excite the appetite.

In his enthusiasm Bushuyev may have seen what was hidden from other eyes, but both his reasoning and his statistics are, as Thayer says, from whose translation of the paper I have so freely quoted, such as to make us reflect.

Three hundred and ninety-eight cases were treated during a period of two years (1895–97). Hemorrhage occurred in four instances, 1.005%. In only one of these cases was a solid diet given to the patient. Of the other three, one was a physician whose fear of the solid diet was respected, while two were admitted to the hospital in so serious condition that forced liquid diet only could be given. Perforation occurred but in a single instance.[6]

The percentage of relapses is not given. The loss of weight was less than in patients fed on a restricted diet, and the general condition at the beginning of convalescence seems to have been almost incredibly good.

Clinicians in the United States who advocate and practice a "liberal" feeding in typhoid fever, use practically Shattuck's dietary. In England Barrs'[7] diet is a similar one. Marsden, it is seen, makes a liberal use of fish.

It is desirable that all possible light should be thrown upon the relative safety and efficiency of the different methods of feeding which have been described. Comparatively recent investigations on the digestibility, availability and fuel value of the various food stuffs, both in health and disease, and a few exact observations of the effect upon metabolism of different diets in some specific fevers, should be helpful in this respect.

Milk, which practically is the fluid diet of to-day with its large percentage of water and its protein, fat and carbohydrates, so combined as to make relatively small demands upon ordinary digestive activity, would seem to be an ideal food. Its residue, although large, is not believed to be mechanically irritating. The laboratory, however, estimates that approximately three liters, representing a fuel value of 2,136 calories, is required to make good the daily metabolism of total energy in typhoid fever or any continued fever with a high temperature range. Such figures are presumably inexact, as the increased amount of energy evolved in fever is still an uncertain estimate. Tentatively accepting three liters of milk as the necessary or desirable daily quantity, clinical experience is to the effect that the daily ingestion in fever of more than two liters over a long period, is impracticable. Three liters necessitates the administration of a little more than 8 oz. every two hours during the twenty-four, and excites such distaste from the very monotony of the diet as often to produce a diminished digestibility of an ordinarily easily digested food material.

In this connection the views of Pawlow[8] and the St. Petersburg school on the secretion of the gastric juice are of interest. Pawlow concludes from his experiments that the primary secretion of true gastric juice is the result of a reflex starting in the mouth, and that the relish of food originates the reflex. Hornborg[9] has shown that the chewing of distasteful or indifferent substances fails to cause gastric secretion.

Without exact knowledge of metabolism experiments,[10] physicians generally have recognized the inadequacy of this limited milk dietary, but have not presumed to disregard the teachings of their elders of the necessity of a fluid diet. A few have cautiously supplemented it with the soft diet, which consists of eggs, custard, bread, potatoes, butter and cream, and by means of which the total daily quantity of protein, fat and carbohydrates ingested is probably increased. The addition of solid food, which practically has been fish or meat or both, to the dietary, has been exceptional and has excited widespread discussion.

The chief objections which have been urged against the soft, and especially the solid, diet have their basis in the generally accepted belief that the digestive power is seriously impaired in continued fever, that the carbohydrates and fats, except in small quantities, are not easily assimilated, and that the digestion of the protein of fish and meat is especially difficult. The further argument has been that the digestion and absorption of such food materials being

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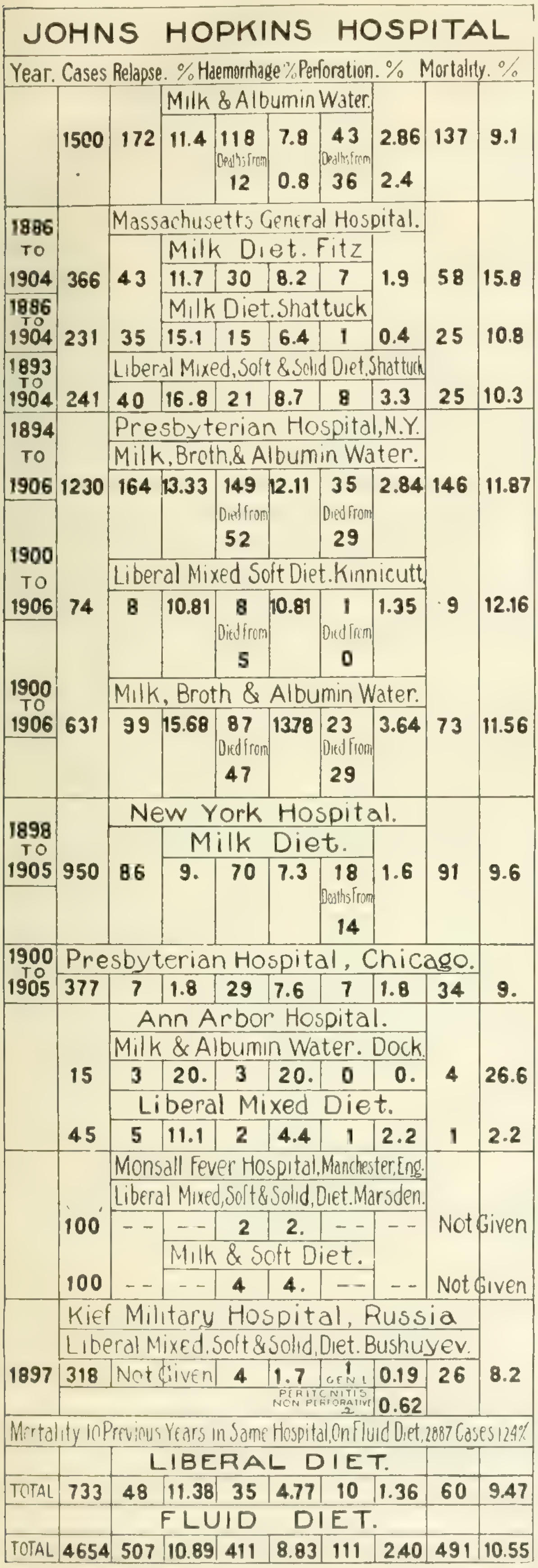
[6] Bushuyev states that perforation occurred only once in 509 cases in the two years 1895–1897, but in another table he gives 398 cases as the total number treated in these years with the liberal diet

[7] Barrs: British Medical Journal, 1897, vol. i, p. 125.

[8] Pawlow: The Work of the Digestive Glands, English translation, London, 1902, p. 12.

[9] Hornborg: Skandinavisches Archiv für Physiologie, 1904, xv, 248.

[10] Nichols has published in *American Medicine*, Vol. ix, No. 18, 1905, an interesting paper on "Diet in Typhoid Fever," based largely upon metabolism experiments.



JOHNS HOPKINS HOSPITAL

Year.	Cases	Relapse.	%	Haemorrhage	%	Perforation.	%	Mortality.	%
			Milk & Albumin Water.						
	1500	172	11.4	118	7.8	43	2.86	137	9.1
				Deaths from 12	0.8	Deaths from 36	2.4		
1886 to 1904		Massachusetts General Hospital.							
			Milk Diet. Fitz						
	366	43	11.7	30	8.2	7	1.9	58	15.8
1886 to 1904			Milk Diet. Shattuck						
	231	35	15.1	15	6.4	1	0.4	25	10.8
1893 to 1904		Liberal Mixed, Soft & Solid Diet, Shattuck							
	241	40	16.8	21	8.7	8	3.3	25	10.3
1894 to 1906		Presbyterian Hospital, N.Y.							
		Milk, Broth, & Albumin Water.							
	1230	164	13.33	149	12.11	35	2.84	146	11.87
				Died from 52		Died From 29			
1900 to 1906		Liberal Mixed Soft Diet. Kinnicutt							
	74	8	10.81	8	10.81	1	1.35	9	12.16
				Died from 5		Died from 0			
1900 to 1906		Milk, Broth & Albumin Water.							
	631	99	15.68	87	13.78	23	3.64	73	11.56
				Died from 47		Died From 29			
1898 to 1905		New York Hospital.							
			Milk Diet.						
	950	86	9.	70	7.3	18	1.6	91	9.6
						Deaths From 14			
1900 to 1905	Presbyterian Hospital, Chicago.								
	377	7	1.8	29	7.6	7	1.8	34	9.
		Ann Arbor Hospital.							
		Milk & Albumin Water. Dock.							
	15	3	20.	3	20.	0	0.	4	26.6
		Liberal Mixed Diet.							
	45	5	11.1	2	4.4	1	2.2	1	2.2
		Monsall Fever Hospital, Manchester, Eng.							
		Liberal Mixed, Soft & Solid, Diet. Marsden.							
	100	--	--	2	2.	--	--	Not Given	
			Milk & Soft Diet.						
	100	--	--	4	4.	--	--	Not Given	
	Kief Military Hospital, Russia								
	Liberal Mixed. Soft & Solid, Diet. Bushuyev.								
1897	318	Not Given		4	1.7	1 GEN'L	0.19	26	8.2
						PERITONITIS NON PERFORATIVE 2	0.62		
Mortality 10 Previous Years in Same Hospital, On Fluid Diet, 2887 Cases 12.4%									
		LIBERAL DIET.							
TOTAL	733	48	11.38	35	4.77	10	1.36	60	9.47
		FLUID DIET.							
TOTAL	4654	507	10.89	411	8.83	111	2.40	491	10.55

*

imperfect, a large and irritating residue is left in the intestine, which may be supposed to affect unfavorably the specific intestinal lesions of typhoid fever, and, still further, to induce recrudescences of fever and true relapses.

The clinical experience of the advocates of a more liberal diet is to the effect that the digestive function is not materially impaired in many cases of typhoid fever, and that often the protein of fish and meat is easily assimilated. Laboratory experiments harmonize with this view.

Puritz,[11] in some interesting laboratory investigations on the effect of a mixed diet in typhoid fever, consisting of meat, bread, milk, Stokes's mixture, tea, coffee, port wine, etc., representing about 180 gm. of protein, 60 to 90 gm. of fat and about 300 gm. of carbohydrates, apparently demonstrated that 79 to 82% of the nitrogen ingested during the febrile period was assimilated, and after defervescence 85.6% to 90%. The food and drink were given often, but in small quantities. His experiments also showed that the protein digestion during the febrile period is increased by the ingestion of large quantities of water, that with abundant nourishment the daily loss of nitrogen and weight is somewhat diminished, and finally, that abundant nourishment causes no rise of temperature.

It will be seen that the total amount of protein given was in excess of, and the carbohydrates and fat in about the usual, amount considered necessary to preserve a nitrogenous and body equilibrium in a healthy adult doing ordinary work.

Puritz's idea was to give an amount of protein that would presumably cover the entire nitrogen excretion, which is increased in acute fever. Neither complications, relapse nor lengthening of the period of fever were observed under this dietetic management. The number of the experimental cases was fifteen.

Khadgi,[12] in somewhat similar experiments, in seventeen cases of typhoid fever, showed that the relative average assimilation of nitrogen during and after the febrile period was 83.8% and 87.5%.

Finally, Hoesslin's [13] conclusions from his investigations upon the effect of various kinds of food in typhoid fever, in nineteen cases, were that with moderate fever (38-40.5° C.) the digestion and assimilation of protein, fat and carbohydrates was "not much different from that of healthy individuals."

Although both clinical experience and laboratory experiments are to the effect that the fluid diet, as employed at present, is inadequate, and that the digestive function in typhoid fever is not materially impaired in *many* cases, still the belief in the necessity of such a diet in *all* cases is nearly universal.

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[11] Puritz: Virchow Archiv. fur Path. Anatomie und Physiologie und fur Klinische Medicin, Bd. 131, S. 327; also, A Digest of Metabolism Experiments, Atwater and Langworthy, Bulletin 45, Revised Edition, U. S. Dept. Agriculture, p. 211.

[12] Khadgi: Inaugural Diss. St. Petersburg, 1886; also, Atwater's Digest, *loc. cit.*, p. 209.

[13] Hoesslin: Virchow's Archiv fur Path. Anatomie und Physiologie und für Klinische Medicin, Bd. 89, S. 95; also, Atwater's Digest, *loc. cit.*, p. 208.

* Three hundred and eighteen cases only are taken from Bushuyev's statistics that there may be no possible error in favor of the liberal diet, and in these are included *all* the cases of hemorrhage and perforation which are stated to have occurred in 398 cases.

Ill-defined fears of the possible influence of a more liberal diet in causing hemorrhage and perforation haunt the mind of the physician and impress his practice. The knowledge that one quarter to one third of the deaths from all causes in typhoid fever are due to perforation may be accepted as the *explanation*, though not as a *justification* of such fears. A justification needs the demonstration that intestinal accidents are more frequent under a liberal than under a more restricted diet.

With the view of obtaining evidence on this point, I have collected and analyzed a large number of typhoid statistics, drawn chiefly from hospital services. It has seemed proper that the records for such a study should extend over a series of successive years, as averages must be accepted in a disease as variable as typhoid fever in its severity in different years and in different localities. For this reason the published cases of Manges,[14] Claytor,[15] and some others, have not been included in my analysis, although they have been exceptionally favorable in support of a liberal diet. The statistics have been arranged in a tabular form and are of interest in many respects.

The total statistics for the liberal diet are taken only from the Massachusetts General Hospital, the Presbyterian Hospital of New York, the Monsall Fever Hospital and the Kief Military Hospital records and represent 733 cases.

The total statistics for the fluid diet are taken from the reports of the Johns Hopkins Hospital, the Presbyterian Hospital of New York, the Massachusetts General Hospital, the New York Hospital, and the Presbyterian Hospital of Chicago, and represent 4,654 cases. The records of Ann Arbor Hospital have not been included in the final computation for the reason that Dr. Dock writes to me that his tables should not be compared, as the fluid diet series is so much smaller and contains also more essentially unfavorable cases. They show, however, that a liberal diet has been used in 45 cases with excellent results.[16]

In my own service at the Presbyterian Hospital, only the cases which were under my personal care throughout their illness have been given; they number 74. All received the mixed soft diet except when all feeding was discontinued temporarily on account of hemorrhage of unusual tympanites; in the latter case sometimes the quantity alone, but not the quality, of the food was changed. The cases were assigned to my service in rotation with those assigned to the other services. While the full number of 733 cases has been the basis for computation of the percentages of hemorrhage and perforation under the liberal feeding, only 325 have been available for the estimation of relapses, and 633 for the mortality. The full number of 4,654 cases has been available for all percentages under the fluid diet. The summary is as follows:

Cases	Relapses	%	Hemorrhage	%	Perforation	%	Mortality	%
LIBERAL DIET.								
733	48	11.38 Basis of 325 cases	35	4.77 Basis of 733 cases	10	1.36 Basis of 733 cases	60	9.47 Basis of 633 cases
FLUID DIET.								
4,654	507	10.89	411	8.83	111	2.40	491	10.55

It would thus seem that so far as the statistics which I have analyzed may furnish evidence, intestinal accidents, hemorrhage, and perforation are rather less frequent under a mixed, soft and solid diet, than under the restricted fluid diet, consisting mainly of milk. The statistics available for an estimation of the relative frequency of relapses, intercurrent and ordinary, under restricted and more liberal diets, are not so large as those analyzed to determine the incidence of intestinal accidents under the different dietary managements. So far as they go, they harmonize with the view generally entertained at the present day, that diet probably has little influence in their causation. The influence of diet in causing simple *recrudescences* of fever I believe to be a real one, but due rather to *abrupt* changes in diet than to its quality.

As the result of the study which has been described, a plea for a different dietetic management of typhoid fever than that which almost universally prevails seems justified. By a different management is by no means meant indiscriminate feeding. Rather, a management adapted to the individual case and based upon the recognition, (1) that while the digestive function in *many* cases of the disease is unquestionably seriously impaired, *frequently* the impairment is not a material one; (2) that a clean tongue, a true appetite, hunger, should be accepted as guides for the cautious employment of a more generous diet; (3) that the individual, rather than the disease, is to be considered and treated.

By such a management I am convinced that much suffering may be avoided, prolonged disability materially modified, the danger of secondary infections more efficiently met, and a more rapid convalescence effected. Further clinical experience must be accumulated to express an opinion upon its effect upon the mortality of the disease.

THE HEART IN THE PUERPERIUM.*

BY HENRY JACKSON, M.D., BOSTON.

It is the experience of the general practitioner that all acute diseases intervening in the puerperium tend to assume a serious character. We dread pneumonia or any similar disease in this condition. It is known that the heart is somewhat enlarged in pregnancy, and the susceptibility of the heart to any acute infection suggests that the enlargement is due rather to dilatation than hypertrophy.

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[14] Manges: The Diet in Typhoid Fever, New York Medical Record, Jan. 6, 1900, pp. 1-6.

[15] Claytor: New York Medical Record, March 17, 1906.

[16] The statistics of the Lakeside Hospital, Cleveland, are excluded for a similar reason, although they also show that a liberal diet was employed with excellent results in 115 cases.

* Read at a meeting of the Obstetrical Society of Boston, March 27, 1906.

I suppose that an irregular and intermittent heart action just after delivery cannot be rare, as in my very limited experience I have seen such a case, a lady who never had any sign of heart trouble either before or since. The labor was not severe, but was preceded by a hemorrhage due to a partial separation of the placenta before labor pains came on. I have recently seen an acute infection in the puerperium that I wish to quote, as it bears especially upon the point in discussion:

A woman had a normal labor, very easy, followed by a normal convalescence. When the baby was three weeks old severe headache with fever came on. I saw her in consultation on the sixth day. Temperature, 103.6; pulse, 140; severe headache; no symptoms of abdominal trouble, and the doctor reported a normal vaginal condition. The severity of the headache suggested meningitis, but the rapid pulse and the absence of paresis and Kernig's phenomenon made this diagnosis unlikely. As the pulse of typhoid is relatively slow and no other symptoms suggested this diagnosis, this disease was considered unlikely. The pulmonary examination was negative. The rapid action of the heart and the feeble sounds suggested to me as possible an acute infection of the heart, either valvular or muscular.

She gradually improved, and a blood examination later showed a positive Widal reaction. I see in the hospital a large number of cases of typhoid, and I think this is in my experience a unique case from the extreme rapidity and poor action of the heart in the early stages of typhoid fever.

In July, 1902, I saw in consultation with Dr. J. B. Swift a remarkable case of acute dilatation of the heart in the puerperium, which ended fatally. By the courtesy of Dr. Swift I read his notes of the case and add thereto my own observations.

On Jan. 24, 1902, Mrs. M. called on me to engage my services during her confinement. She was referred to me by the late Dr. E. N. Whittier. At the time of this visit she was about three months pregnant, for the first time. She was twenty-five years old, had been married six months, and said she had always been well.

On March 23 she came to see me about something not connected with her pregnancy, but during the conversation happened to mention that at times she was conscious of her heart beating strongly. On inquiring into this more carefully, she told me that as a girl she had been accustomed to rather violent exercise, that she had ridden the bicycle a great deal, and was in the habit of taking long rides. At times, after dancing, the heart would beat so hard that on going to bed she would be conscious of the bed shaking from the beats.

Her heart had been examined several times by different doctors, and they had all told her that she had no organic disease. She did not know what they meant by that, but supposed they meant her heart was all right. I examined her, but could find nothing wrong. I asked Dr. Whittier about her, and he told me he had only known her since her marriage, that he had never examined her heart, but would suppose from the history that the heart had been hypertrophied.

On April 18, 1902, she had an attack of laryngitis with a hard cough. This lasted a few days, but did not seem to bother her very much. She had had no trouble with her heart during her pregnancy, and since talking with me had thought no more about it.

On May 26, 1902, I was called to see her at 6.30 A.M. and found her complaining of the rapidity of her heart. She told me that two days before she had gone out of town to visit a friend, that she had to hurry to catch the train, and that, after the train had started, her heart began to beat violently. Beyond the annoyance felt from the strong beats she did not feel badly, and had remained with her friend until the afternoon before, when she returned home. During the night the annoyance was so great that she could not sleep, and now she would like to have it stopped.

I found the heart going so rapidly, tumultuously and irregularly that I could not count it. The respiration was quick, but there was no dyspnea, and except for the disturbance of the heart she felt well. She expressed surprise when I told her that she must remain as quiet as possible in bed. I gave her a hypodermic of strychnia 1-30 and digitalin 1-50, and ordered absolute rest in bed. At noon the beats were more regular and could be counted with the stethoscope at 200. Strychnia 1-30 was continued every three hours, and at 8 P.M. Dr. Whittier saw her with me. At this time the rate was 180 and fairly regular. There was no murmur detected; the area of cardiac dullness was not perceptibly increased; the apex beat was in the fifth interspace in the mammary line and struck the finger with considerable force. The diagnosis of hypertrophied heart with tachycardia from overstrain was made. Morphia $\frac{1}{8}$ P.R.N. was ordered.

The next morning she said she felt more comfortable, and the nurse reported that she had slept in naps during the night. The pulse was still 200. This same condition remained through this and the following day, the pulse once dropping to 160, but most of the time being between 180 and 200.

During the second day she vomited everything that was given her and was, therefore, fed by rectum. Beginning in the afternoon of the third day a granule containing 1-20 of a grain of digitalis leaves was given every two hours. During the morning of the fourth day there was no apparent change except the complaint of being awfully tired. About 3 P.M. she suddenly exclaimed that she had a hot flash to the head, shortly after which she went to sleep, and when I saw her at five o'clock the heart was beating quietly and regularly at 86.

In a day or two she seemed as well as ever. She was cautioned about making an extra exertion, and went through the rest of the pregnancy without any trouble. The urinary examinations always showed a normal condition of the kidneys.

Labor began early in the morning of July 6 and continued during the day, the os dilating slowly. The head presented with the occiput posterior on the right. Fearing lest the heart should suffer from a prolonged or hard labor, as soon as the os was sufficiently dilated, with the assistance of Dr. E. E. Everett, she was etherized, high forceps with traction rods were applied, and the child was easily delivered.

She stood the labor well and everything went smoothly for a week. The temperature was normal, the pulse was never above 80, lactation was well established, and both mother and child seemed to be in excellent condition.

On the morning of the eighth day after delivery, July 14, without apparent cause the heart began to beat rapidly again. When seen by me the pulse had dropped to 120, but was tumultuous and irregular. The digitalis granules were given that day and at night; because of nervousness, she was given 20 gr. of bromide of potassium. She had a good night and the next day the pulse was 80, but irregular. On the following day, July 16, the pulse was 120 again, and could only be counted at the apex. Everything taken by the mouth was vomited, so rectal feeding was resorted to and nursing was stopped. The same condition continued for two days, nothing seeming to have any effect on the heart's action, except when strychnia was given, and then the rapidity was increased.

At this time I was called out of town and was gone two days, leaving her in charge of Dr. C. H. Hare. During the second day of his attendance he noticed that the apex beat was below the fifth interspace and outside of the mammary line.

On my return I found her very much agitated because her friends were urging the calling in consultation a physician who had seen her before her marriage, but whom she disliked. I asked that Dr. H. Jackson be called. He agreed in the diagnosis that dilatation was beginning, and advised raising the head, keeping an ice bag over the cardiac region and giving 10 mm. of fat free digitalis every two hours. The raised position made her so uncomfortable that it was abandoned. She was nauseated after the second dose of digitalis so after that it was given by rectum. Codeia from $\frac{1}{8}$ to $\frac{1}{2}$ gr. was given as needed to insure sleep.

The next day she seemed better, although the heart rate was still 180. She objected so much to the ice bag that that was omitted. During the next five days no change was noted. At the end of that time coarse râles were found at the base of the right lung. That afternoon Dr. Jackson saw her again with me, and found a pleuritic friction at the right base, with an enlarged and pulsating liver. The next morning I was informed by her husband that my services were no longer needed as he had found a doctor who was a heart specialist and who said he could cure the patient in thirty-six hours.

The two nurses who had been in attendance were discharged because they would not be in sympathy with the new régime. I learned afterwards that the specialist's boast failed, that so far as friends could see there was no change in the condition of the heart, that she grew weaker each day, and died ten days after I had been dismissed, or about four weeks after delivery.

Dr. Whittier did not consider the case as one of tachycardia due to exophthalmic goitre, or rather as a functional tachycardia in which exophthalmus had not developed. Physical examination showed a marked pallor; great distress in respiration; cold extremities; heart enlarged to right and to the left; apex outside the nipple line; no edema; rate 180. I thought I heard a diastolic murmur at the base, but this diagnosis was not confirmed by a second sound heard in the femorals. This was July 22.

July 23 to July 24 Dr. Swift reported her as little more comfortable.

July 27 I saw her again. Respiration, 48; pulse, 148. In the right axillary region a pleural friction sound was heard, also fine râles. There was a marked pulsation of the veins in the neck, pulsation of the liver and a systolic murmur heard over the liver. These signs demonstrated a marked tricuspid regurgitation, evidently dependent upon sudden dilatation of the heart, as none of them were present five days previously. The question of a pulmonary embolism was raised in my mind, accounting for the sudden dyspnea. Dr. Swift's notes have shown how futile were the therapeutic suggestions we could make.

This was a case without septic infection, but one of acute and fatal dilatation without demonstrable cause, except the effect of labor upon a heart that previously was not absolutely sound, though no previous examination had suggested valvular disease.

TUBERCULIN IN TREATMENT OF PULMONARY TUBERCULOSIS.*

BY WALTER A. GRIFFIN, M.D.,
Resident Physician, Sharon Sanatorium, Sharon, Mass.

Tuberculin has been used as a cure for tuberculosis since 1890 when Koch first gave it to the world. Few things have been received with such joy, and fortunately few things in life have created such disappointment. It is certain that the pendulum swung too far at first, that hope for what this then new remedy would do was too great. And it is probable that it swung too far in the opposite direction when the hopes were so little realized.

Theoretically tuberculin should be of value as an immunizing agent. Experimentally it has immunized animals to a greater or less degree according to the observations of numerous investigators. Clinically its utility can still be called in question, for while some claim excellent results, others state that patients are made no whit better by its use. In general, however, those who have used it for the greatest length of time are most enthusiastic for continuing its use, while the investigator who has had only a few cases is more apt to give it up. There is practically no one who has used it to any extent, moreover, who would state that the injections work any injury when properly given; while even the most conservative are willing to say that probably fewer relapses occur in patients who have had the treatment.

Many varieties of tuberculin have been brought forward, some to be discarded and some to be used for years. The reason for the multiplicity of the products is that no one knows just what the toxin of the tubercle bacillus really is, and hence various methods of extraction have been employed to try to obtain the essential poison. The culture medium on which the bacilli grow certainly does not contain all of the toxin, while it does contain much that is needless or even harmful to the body into which it is injected. Koch's old tuberculin, since it consists of this medium, is not all that it should be and cannot do the good that a more refined product should be able to do. Koch's new tuberculin which contains the bacilli powdered as minutely as possible is not free from danger since it has been proven that virulent bacilli are present in it. These two products have been used most extensively up to the present time, although various individual workers have prepared products to which they have given special names, and for which they claim good results. Thus Klebs has brought out antiphthisin and tuberculocidin, Maragliano and von Ruck have prepared a watery extract, Beraneck has recently devised a new product, and within a year von Behring has announced that he has obtained a toxin by treating the bacilli in special ways which will effectively prevent the disease. These products are but samples of the various extractives from tubercle bacilli that have been brought forward from time to time. As yet no one can say that sure immunity is to be gained by employing any of them. At the same time it is reasonable to suppose that immunity may come from this direction of investigation. It is questionable if this immunity will ever be very strong, or at least strong enough so that animals may be made to produce a serum sufficiently powerful to passively immunize individuals to the same degree that diphtheria antitoxin immunizes.

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* Read before the Plymouth District Medical Society, April 18, 1906.

Just what action tuberculin has upon the cells of the body is not definitely settled. Injected into healthy individuals it causes no inconvenience, but in the tuberculous it causes a reaction, possibly because it there meets certain cell derivatives which unite with it to make a distinct irritant. The original idea obtained that the cells in immediate proximity to the tubercular nidus were the sole ones acted upon, That these particular cells are stirred up, at least. with old tuberculin, is evident from the congestion which follows, as noted by increased signs in the lungs when the lesion is here, or by congestion about an infected larynx or an area of lupus. In addition the cells of the body generally are stimulated as is evident from the fact that progressively increased doses can be given without harm; and further that experimentally, at least, animals gain a slight immunity to infection by inoculation. This immunity is not so pronounced as when other products of the bacilli are used, or even avirulent bacilli themselves are injected, but up to the present time it has not been possible to grow bacilli from such a source or in such a way that one would feel free to use them on human beings. Thus Trudeau was able to immunize animals with cultures which had lost their virulence by long cultivation, but one would not dare to try to immunize men in the same way. Neither has it been possible to prepare bacilli known to be virulent in such a way that their use is unattended with risk. Attempts have been made in this direction and Koch's new tuberculin is the best known example of work along this line. Finally, as stated, numerous attempts have been made to extract the essential toxin from the bodies of the bacilli, and many of these extractives have been used clinically without, however, proving that they have any greater immunizing power than the old tuberculin. Nobody knows what the toxin is nor what particular extractive contains the most of it. Von Behring has heralded the latest product, and we certainly hope that he has found the sure and safe way to gain immunity.

When tuberculin was first introduced it was used indiscriminately upon incipient and far-advanced cases. Many patients were made tremendously sick, and some were undoubtedly hurried to their graves. To-day it is probable that practically none are injured even if none are helped. Far-advanced cases with fever are not now advised to take the drug although some of the bacillary extractives have been used in such cases by certain observers, and good results have been claimed. Neither are the large initial doses formerly employed now deemed permissible. Treatment is begun with but a fraction of a milligram, and the size of the dose is increased only so fast as may be without causing fever reaction. This slow method of procedure is commonly employed with all the tuberculins now in use. Months ensue before large doses can be given, and the whole course of the treatment may last a year.

As guides to determine how rapidly the injections may be pushed, reliance has to be put upon the temperature chart, and upon the general condition of the patient. A four-hour chart is commonly kept and if the temperature goes over 99° the previous dose is repeated or even lessened. If any constitutional disturbance arises, as noted by headache or increased congestion of the tubercular focus, whether it be larynx or lung or any other part, the same caution as to dosage is employed. Recently Wright, of London, has devised a method of testing the power of the serum to increase phagocytosis. The process is called the determination of the opsonic index. Certain cases have their index increased by tuberculin, while others have it lowered. These latter, therefore, are not considered suitable cases for treatment. Furthermore, those cases which are at first suitable may show a lowering of the index if the drug is pushed too fast or given in too large doses. Practically, the technique to determine the index is a good deal involved and hardly to be undertaken outside of a well-equipped laboratory. One important thing in connection with the test, according to Wright, is that the opsonic index is raised to its highest point by small amounts of tuberculin, and he never reaches more than very moderate doses. In his work he uses Koch's new tuberculin. In other cases not controlled by the opsonic index it is the custom to increase the patient's power to receive the drug until he can withstand doses of 500 to 1,000 mgm. or even more (½ to 1 cc. of crude tuberculin). It may be that in the future we shall consider these doses altogether too large. Certainly, it has been already established by clinical experience that there may be a point reached where the cells of the body will cease to be stimulated by tuberculin, and experimentally the same pathological changes are observed in the various organs of an animal killed with tuberculin as are observed after death from tuberculosis.

It is probable, therefore, that from evidence at hand patients will do as well or better by receiving rather moderate doses, and since after treatment has stopped for a while it cannot be renewed except by starting in with small doses it may be best, as indeed some advocate, to give more than one course of treatment, each lasting some months, and with months of intermission.

We have given tuberculin at the Sharon Sanatorium to three patients for a lengthy period during the last year and we have five at present under treatment. In all of these cases we have used Koch's old tuberculin, kindly supplied by the Saranac Lake Laboratory, except in two instances where von Ruck's watery extract was used for a while. In regard to this latter product, I found that the two patients who received it were in no wise made less susceptible to ordinary tuberculin, for after they had been worked up to .650 gm. of the watery extract I gave them each .01 gm. of tuberculin and caused a typical reaction. This does not mean necessarily that they had gained nothing in immunity, since the two products are so utterly different and since I had no way of testing the agglutinating power of their serum before and after the course of treatment, but it left a doubt as to the utility of using watery extract, and both patients are now receiving old tuberculin in small doses.

The method of procedure is as follows: four-hour charts are kept and on every other day the injections are given beginning with a quarter of a milligram, and increasing as rapidly as possible without causing a reaction. At first each increment is only a fraction of a milligram, but towards the end of a treatment a case can often take an increment of several centigrams without showing a reaction. It is not always possible to escape fever with some patients, the temperature frequently rising about a degree, but in this connection it is important to note that some claim greater improvement in those cases that have these mild reactions. Of the three cases discharged from the sanatorium two occasionally had a little fever during the treatment and these two were both discharged arrested, whereas the third case never showed any reaction but once, and went away still coughing and raising bacilli. The history of the three cases more in detail is as follows:

Case 243. Admitted first April 20, 1903. There were well-marked signs all over the left side of the chest and at the top of the right. The sputa contained many tubercle bacilli. With ordinary sanatorium treatment the cough and expectoration ceased and the weight increased forty-two pounds. She was discharged at the end of eight months. June 11, 1904, she was readmitted for renewed cough and expectoration. For five months the physical signs and general condition remained about the same. Bacilli could be demonstrated in the sputa at any time. Finally, since there had been no appreciable change since entrance, Dr. Bowditch decided to try tuberculin. Twenty-seven injections were given over a period of five months ranging from .0005 gm. to .600 gm. In all 2.1 gm. were given. Soon after the treatment was begun the cough increased, and at this time the bacilli were more numerous in the sputum in this case than in that of any other patient in the sanatorium; but this condition rapidly improved and for more than a month before discharge the cough and expectoration were nil, while the signs in the chest were likewise much improved, and I understand that she has remained in good general health since returning home.

Case 342. This patient came with a history of a cough for five months. There were well-marked signs over the upper two thirds of the left chest, and tubercle bacilli were present in the sputum. Soon after the cough and expectoration increased and there was slight temperature in the afternoon. From this time there were numerous upsets and after the patient had been in the sanatorium three and a half months the signs had increased so as to be nearly all over the left side and with slight signs on the right. The voice was also husky and the larynx showed redness and swelling about the artynoids and redness of the vocal bands. At this time treatment was begun with tuberculin. At first there was a little fever after nearly every injection. The cough increased also and there were more bacilli in the sputum. Gradually all the signs and symptoms improved until at discharge there had been no cough or expectoration for some time and the signs in the chest had cleared up to a marked degree. Treatment was continued for a period of seven and one-half months. In all there were 58 injections, the last one being .580 gm. By a recent report the cough and expectoration had not returned and the patient was feeling well.

Case 337. This patient came with a history of cough for eight months. She showed well-marked signs in the upper left lung, and there were signs of beginning trouble in the right lung. Tubercle bacilli were numerous. The condition improved rapidly in the first three or four months, and then improvement came much more slowly, so that for two months or more there seemed to be no marked change in the condition, and the tubercle bacilli persisted in the sputum. Tuberculin treatment was begun about six months after entrance and was continued for seven months. The patient received in all 51 injections, the last one being .700 gm. Only once was there a reaction following an increment of .08 gm., toward the end of the treatment. The general condition improved somewhat, but the cough and expectoration remained about the same while bacilli persisted in the sputum. Since discharge this patient has had an attack of hemoptysis, but is in fair condition in another sanatorium.

These cases are striking since they would not be considered particularly favorable for tuberculin treatment, and since they were under observation for some months before treatment was instituted. This latter point is of especial importance since Dr. Bowditch has felt very strongly that the value of a treatment can be judged only after the patient has been under ordinary hygienic conditions for some time, otherwise the improvement which ought to be ascribed to sanitary living might be used in praise of a particular drug. In this small series of cases the evidence is indeed strong that tuberculin was of great value in at least two cases and of no harm in the third.

Clinical Department.

DERMOID CYST WITH TWISTED PEDICLE AND TWISTED BROAD LIGAMENT.*

BY W. L. BURRAGE, M.D., BOSTON.

H. H., twenty-five years of age and mother of one child, entered the Gynecological Service of the Carney Hospital, Sept. 15, 1898. She had been married five years and besides a difficult labor four years ago had had an abortion at three months, three years before. In the past two years she had suffered with eight or ten attacks of severe pain in the right side.

Present attack of pain in the right side and loin has lasted for two weeks. Catamenia regular. Profuse vaginal discharge with bad odor. Dysuria.

Copper-colored eruption for two months on arms, legs, palms of hands and soles of feet. Sore throat. Loss of hair.

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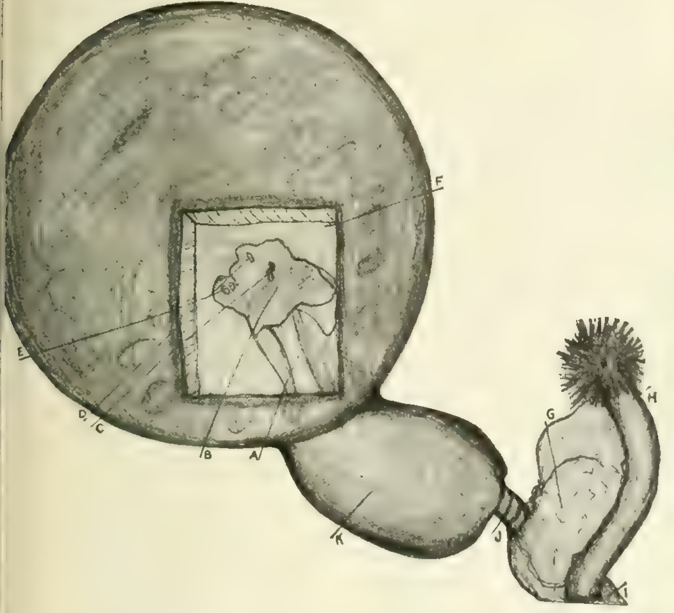
* Read before the Boston Obstetrical Society, March 27, 1906.

Examination showed a well developed and nourished woman, with a marked syphilitic eruption. Lacerated cervix and perineum and a tumor the size of a fetal head filling the right pelvis. Uterus retroverted under the tumor, 3 in. deep. Temperature, 101°. Pulse poor. In four days the temperature had gone to 99°, general condition much improved and the eruption was fading. Operation; curetting, ovariotomy and suspensio-uteri on Sept. 19, 1898.

The peritoneum was found thickened to 0.5 cm. The dark walled cyst from the right ovary was found to be lightly adherent to the parietes and there was a large organized blood clot in the pelvis under the cyst. Fundus uteri not adherent. The cyst contained about 2 quarts of clear fluid with bits of fat floating in it, also much hair, a molar tooth, bicuspid teeth and a mass of bone.



Diagrammatic sketch made from memory on day of operation of dermoid cyst with twisted pedicle.

H. H., Sept. 19, 1898, Carney Hospital, Ops. III, 298. A, band; B, mass of bone; C, D, bicuspid teeth; E, molar tooth; F, window in cyst to show bone; G, remains of right ovary; H, right tube; I, two twists; J, three twists; K, Hematoma.

Cyst filling pelvis and on top of retroverted uterus. Capacity of cyst about two quarts clear fluid with slight brownish color, fatty particles mixed with light brown hairs, two handfuls of mixture. In lower part a mass of bone covered with black blood clots and tissue and connected with wall of tumor by a band (A) and by one corner of mass. Surface of tumor dark red to black. Hematoma on section showed hard, glistening surface, deep red. Twists in pedicle like cockscrew with handle, in pelvis, three turns. Two twists in broad ligament outside of tube, same direction.

In the pedicle, which was about 3 in. long, was a hematoma, and at the remains of the right ovary the pedicle was twisted three times like the hands of a watch. The right tube was congested, but normal. The right broad ligament was twisted twice on itself, similar to that of the pedicle. The tumor, tube and remains of ovary were removed.

The left ovary and tube were normal with the exception of a small cyst in the ovary, which was resected. Suspension was performed to keep the fundus out of the cul-de-sac.

Wound closed without drainage.

The patient made a good recovery and when discharged was nearly free from the skin eruption.

The accompanying sketch shows diagrammatically the situation of the torsion of pedicle and broad ligament.

A CASE OF DERMOID CYST OF THE OVARY WITH TWISTED PEDICLE.*

BY R. G. WADSWORTH, M.D., BOSTON.

Twisting of the pedicle of an ovarian cyst is not in itself a particularly rare or interesting occurrence, but in this case the previous history seems to me to be sufficiently unusual to make it worth while to report.

Mrs. D. L., twenty-eight years old, a small, frail looking Italian, came to the Out-Patient Department of the Free Hospital for Women, on Feb. 5, complaining of pain in the left iliac region. The patient was almost completely ignorant of English and the interpreter was unsatisfactory, so that the following history was only obtained piecemeal during the progress of the case and after operation. She has always been well. The catamenia have been regular and normal in character, but there has always been some dysmenorrhea, the pain being confined to the hypogastrium and back. She has had three children, the labors being normal. The last child was born on Sept. 9, 1905, and she has been nursing it up to the present time and has had no menstruation. On Oct. 13, about a month after the baby was born, she had an attack of pain in the left iliac region which lasted three days. On the second day the pain was so severe that a doctor was called, who gave a cathartic and applied some paste, presumably antiphlogistine, to the abdomen. The pain passed off the next day and she remained well until about a month later, when she had another attack, similar in every way to the first one and passing off in the same way under the same treatment. In December there was another attack and again on Jan. 17, both exactly like the earlier ones. The present attack began on Feb. 3, two days before I saw her. The pain had been steadily increasing and was evidently quite severe. It was confined to the left iliac region. The bowels had moved daily and urination was normal. There had been no nausea or vomiting. The patient has been unable to assign any cause for this or the previous attacks and repeated questioning has brought to light no unusual physical exertion or change in the usual health immediately preceding them.

Examination of the abdomen was negative except for some slight tenderness on deep pressure in the left iliac region. Vaginal examination showed the uterus to be forward and of normal size. Behind and slightly to the left of the cervix was a round, smooth, freely movable mass about the size of a small hen's egg, which was only moderately tender. It was evidently a prolapsed ovary somewhat enlarged. The right ovary was easily palpable in its normal position and was of normal size. A tampon soaked with ichthyol-glycerin was inserted and she was told to return in three days.

The next day the husband came to the Out-Patient Department to say that there was no relief of pain and was told by the nurse in charge to remove the tampon. The next morning I was called to the patient's home by telephone. She complained of severe pain and had slept very little during the night. The temperature was 99.4° and the pulse 108. Examination showed the ovary to be of the same size as before, but rather more tender. There was also rather more tenderness in the left iliac region, but no muscular spasm. Otherwise the examination was negative. She was given boroglyceride suppositories to use night and morning and told to use hot applications on the abdomen. Bromide of potassium was given in 10-gr. doses to be repeated every hour for four doses, as it seemed as though a part, at least, of the distress was due to nervous excitement, and I did not care to give morphia for fear of masking further symptoms. The persistence of the pain and the increased tenderness of the ovary suggested the diagnosis of twisted pedicle, but in view of the history of the previous attacks passing off spontaneously and the good condition of the patient, immediate intervention did not seem to be necessary. I told the friends, however, that an operation would be necessary in the next two or three days if the pain did not subside, and told them to let me know by telephone if there was no improvement.

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* Read at a meeting of the Obstetrical Society of Boston, March 27, 1906.

I was not called again until two days later, that is on the sixth day of the attack. I found the patient looking drawn and sick, temperature 100,° pulse 120. The pain had been gradually increasing and was now general throughout the abdomen, but worse in the left iliac region and back. There had been very little if any sleep, for the past forty-eight hours. For the last twelve hours there had been some pain on urination. The bowels had not moved for two days and the tongue was coated. Examination of the abdomen showed no dullness anywhere and only slight increase of the tenderness in the left iliac region. There was no distention and no muscular spasm. The patient refused to allow a vaginal examination. The diagnosis of twisted pedicle now seemed assured, there being, however, some question of an extra-uterine pregnancy, but this was almost certainly eliminated by the absence of signs of pregnancy or of hemorrhage and especially by the persistent character of the pain, which had now lasted six days without intermission. In either case there was now no question of the need of an operation, and I therefore told the patient, through her friends, that she must go to a hospital. She absolutely refused to go anywhere but to the Free Hospital for Women, and would not go there until the next day, as this was Friday. She became so excited in her opposition that I decided that it would be safer to wait another twenty-four hours, when she would allow herself to be taken to the hospital more willingly. She was given 1-30 gr. of strychnia to be repeated in four hours and a teaspoonful of Epsom salts every hour for four doses, as the bowels had not moved for two days. That evening the pain had practically ceased, but the temperature was 101 and the pulse 124. The tumor was considerably larger, much softer and was much less sensitive. I left ⅙ gr. of morphia to be taken at ten o'clock if the patient was not sleeping and arranged to have her taken to the hospital early the next morning. There was some sleep under the morphia and the next morning the temperature was 100° and the pulse 124. At the hospital Dr. Baker saw her and agreed with the diagnosis and the need of an immediate operation, which he kindly allowed me to perform.

Under ether a median incision about 3 in. long was made. The tumor was found in the bottom of Douglas' fossa. There were no adhesions and after enlarging the incision slightly, it was delivered through the wound. It consisted of the left ovary enlarged to about the size of a mandarin orange, and dark purple in color. Wound partly about it and adherent to it was the distal half of the tube, much distended and of the same dark purple color. The pedicle was twisted three full turns, and on untwisting it there was no change in the color of the tumor. The proximal half of the tube was normal in appearance and was separated from the distal distended half by a tight annular constriction, entirely bloodless and completely obliterating the lumen, which had undoubtedly been caused by the torsion of the distal half of the tube with the ovary. This part of the tube was accordingly removed with the ovary, the pedicle being secured by two chromicized catgut ligatures, one controlling the ovarian artery, and the other including the tube at the constriction. The right ovary contained two small cysts which were removed and the wounds thus made closed with fine catgut.

The convalescence was entirely uneventful, the patient leaving the hospital in good condition on the sixteenth day after operation.

The report of the pathological examination of the specimen by Dr. W. P. Graves is as follows:

"The specimen consists of an ovarian dermoid cyst with about 2½ in. of the fimbriated extremity of the tube attached. The whole specimen is dark and congested in appearance. At the widest diameter the cyst measures about 3 in. On section the cyst proves to be monolocular and filled with congealed blood and a white caseous material through which are scattered short spears of hair. On section, the tube shows the wall dark and congested but the lumen about normal in appearance.

"*Microscopical Examination.* — Lining wall of cyst shows tissue so much infiltrated with blood that it is impossible to make a definite diagnosis of its structure. The outer wall shows it to be of the ordinary fibrous structure much infiltrated with blood. The tube shows the rugæ to be normal and the wall edematous and infiltrated with blood.

"*Diagnosis.* — Ovarian cyst with twisted pedicle."

The chief point of interest in this case is the history of the regularly recurring attacks of pain in the left iliac region. There had never been similar pain before the last labor and as the ovarian tumor must have existed before that, the labor must have brought about some change in the tumor. The regularity of the recurrence of the attacks and the intervals between them suggest a connection with the menstrual cycle, and the similarity of the early attacks to the last one, which we know was due to twisting of the pedicle, suggests the probability that they also were due to the same cause. The most reasonable explanation of the history, therefore, seems to be that during labor or the subsequent involution of the uterus, a partial twist of the pedicle took place, which did not cut off the circulation sufficiently to cause symptoms, but that the monthly congestion of the uterus and appendages interfered with the already restricted circulation of the ovary to the point of causing pain. In the last attack the actual degree of torsion must have increased, since the pain lasted so much longer than in the former attacks and as it is very unlikely that with the three full turns of the pedicle found at operation there could have existed enough circulation to nourish the ovary during the five months since the labor.

A CASE OF PREGNANCY COMPLICATED BY MYOCARDITIS FOLLOWING DIPHTHERIA.*

BY J. R. TORBERT, M.D., BOSTON.

Bacon in his article on heart disease as an obstetrical complication, states, "Many cases of heart lesions, especially myocardial changes which cause few symptoms, will be overlooked unless a routine examination of the heart is made in all cases."

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* Read at a meeting of the Obstetrical Society of Boston, March 27, 1906.

Williams in the textbook of obstetrics states, "With reference to myocarditis, owing to the difficulty in making an exact diagnosis, myocarditis is rarely recognized during life; nevertheless, it is a most serious complication of pregnancy, and is one of the frequent causes of sudden death during the second stage of labor and in the first few hours of the puerperium. It is highly probable that abnormalities in the functioning of the heart, especially degenerative changes in the myocardium, which under ordinary circumstances might be of little importance, may be attended by serious consequences during pregnancy, especially from embarrassment of the circulation at the time of the birth of the child."

The following case of acute dilatation of the heart at the termination of the second stage is reported to-night:

Primipara, aged thirty-seven. First seen by me after she had been in labor about ten hours. Her past history is unimportant up to two years ago; at this time she had diphtheria, the throat symptoms persisting for nine weeks. About one year later she began to have occasional attacks of palpitation; at times she had a feeling of constriction in the throat, this condition at one time necessitating her leaving a performance at the theatre. At the time of my first visit, her physician stated she had been in labor about ten hours, her pluse had risen from 84 to 132 and she was not standing the labor at all well. She was in a semi-recumbent position on account of a moderate amount of dyspnea. Her pulse was then 132, intermitted every thirty beats, and was more rapid at the apex than at the wrist. Vaginal examination showed the os dilated one half, membranes not ruptured, and a face presenting chin to the left and anterior. On account of the maternal condition immediate delivery was determined. Ether was started, patient was scrubbed up, the vagina dilated, the bladder emptied by catheter, dilatation of os completed manually, membrane ruptured and a mid-forceps operation done. Baby was O. K. Mother's condition up to this time had been first rate; directly after the birth of the child, she was reported as being pulseless, her face was pallid, extremities cold, the pulse was imperceptible at the wrist. The placenta was hastily removed by the Credé method and she was placed in bed. There was no hemorrhage. The bed was raised, heaters applied and the extremities briskly rubbed. She remained in this condition for an hour; she came out of ether and was very restless, so was given one sixth of morphine. A tight abdominal swathe was applied; at the end of two hours her pulse could be counted about 160. She was given a second dose of morphine, which seemed to improve the heart materially. At the end of five hours the pulse was still 160, irregular and of poor volume. Under brisk rubbing the circulation in the extremities improved materially, and with this her pulse picked up. For three days the pulse remained between 140 and 160, then gradually coming down to about 100. At this time the irregularity was still present, but not as marked.

In a long series of cases of diphtheria, reported by White and Smith from the South department, physical signs of a greater or less degree of cardiac disturbance were very common. Irregularity of the pulse was present in 60% of the cases, murmurs existed in 68% of the cases. Various observers have demonstrated pathological changes in the heart muscle and in the nerves controlling the heart. The murmurs are of long duration and make it necessary for observation of the heart long after the convalescence. This class of cases may exist and cause no symptoms until some severe task is put upon the heart, as climbing a mountain, violent exercise, the strain of labor, — any of these cause the affected muscle to give way with collapse or sudden death resulting. Formerly it was customary to attribute cases of this class to shock, but it seems to me that careful examination will generally show the existence of some pathological lesion sufficient to account for the abnormal state. In this case the previous history of diphtheria, with the subsequent involvement of the circulatory system shown by the symptoms of palpitation, dyspnea, the action of the heart at the time of the birth of the child, the pulse showing a distinct gallop rhythm, the apex being displaced, down and outward, and the result of the treatment, — all point to acute dilatation rather than any other condition. The interesting points of the case were (1) the diagnosis, (2) the treatment, here the object being to quiet an already dilated and rapid heart by stimulating the peripheral circulation, constriction of the dilated abdominal vessels by a tight swathe, and the use of morphine both as a hypnotic and as a cardiac stimulant.

Medical Progress.

PROGRESS IN OTOLOGY.

BY PHILIP HAMMOND, M.D.,
AND
GEORGE L. TOBEY, JR., M.D.

EXTERNAL EAR.

Leider[1] reports 9 cases of acquired atresia of the external auditory canal which were operated upon in Politzer's clinic. In 7 of these cases, because of the existence of a chronic suppuration it was necessary to do the radical mastoid operation.

Most[2] by means of injection has given us a very good idea of the topographical anatomy of the lymphatics connected with the external and middle ear.

The glands of the external ear are divided into four groups:

(1) The pre-auricular glands, usually two in number, drain the tragus and the outer anterior superior wall of the cartilaginous canal.

(2) The infra-auricular glands drain the greater portion of the external ear and the lower part of the canal.

(3) The retro-auricular glands drain a portion of the external ear.

(4) The deep cervical glands drain the middle and posterior part of the external ear and also the lower portion of the external canal.

The membrana tympani has three sets of lymphatics, — one for the epidermic layer, one for the membrana propria and another for the mucous membrane on its inner surface.

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[1] Leider: Arch. f. Ohrenheilk., Bd. 64, S. 254.

[2] Most: Arch. f. Ohrenheilk., Bd. 64, 4, 1, 233.

The lymphatics of the epidermic portion drain both into those of the external canal and into those of the other two layers; these latter in turn connect with the lymphatics of the middle ear.

The lymphatics of the Eustachian tube, connecting with those of the middle ear, in their turn empty into the retropharyngeal glands and these in turn into the deep cervical glands.

Schütz [3] injected the middle ears of cadavers with methyline blue and then catheterized the Eustachian tube. Following this procedure the mastoid was opened, and in eighteen ears with a small perforation of the membrana tympani the methyline blue was found in the mastoid cells. In large perforations of the posterior upper quadrant of the drum, no coloring matter was found in the mastoid.

Eight cases were then injected without inflation, and in these, on opening the mastoid, the methyline blue was found in the mastoid cells only once, and in this case a very forcible injection had been made. From these experiments he concludes that the air douche is contra-indicated in acute suppuration of the middle ear.

Hastings [4] reports a very unusual case of paralysis of the abduceus nerve occurring during the course of an acute suppuration of the middle ear. This subject has been investigated by Gradenigo, who has studied the records of 19 cases, 6 of them occurring in his own practice. He decided that the symptoms resulted from a circumscribed simple serous leptomeningitis, localized about the tip of the pyramid, and caused by the diffusion of the infection in the tympanum. In the particular case which Hastings reports, a fistula was found through the inner tympanic wall, allowing purulent infection of the labyrinth.

Fossells also cites a case of acute otitis media, in a boy eleven years old, due to influenza, with no marked symptoms, but a paralysis of the abduceus nerve and a marked headache. The mastoid was opened, and a very small amount of pus evacuated. The headache continued and the middle fossa was opened, but nothing found. The paresis gradually disappeared.

In cases of stretched drum membrane, often due to over-zealous treatment, Bryant [5] has used collodion with good results. He used contractile collodion, painting it on the relaxed portion of the drum. It seems to be especially beneficial in two classes of cases, namely:

(1) Relaxed posterior upper segment of the membrana tympani, a very common condition.

(2) Laxity of the malleal ligaments.

Maire [6] reports forty-four cases of disturbance of sensation of taste in middle ear disease. They were divided as follows:

Eight cases in sclerosis, 18 cases in acute otitis media, 18 cases in chronic otitis media suppurativa with ossiculectomy or radical operation.

In the cases of sclerosis, a slight loss of sensation of sweet and bitter, and a marked loss for sour and salt was noticed.

In the cases found in otitis media acuta the sensation was restored as the ear improved.

In otitis media suppurativa chronica all four senses were equally affected. In the operated cases restoration was observed in one or two cases only, while in the unoperated cases, where there was not a large amount of cholesteatome there was complete restoration of sensation when the ear ceased to discharge.

EAR COMPLICATIONS IN THE ACUTE EXANTHEMATA.

In a report of 100 cases of measles during an epidemic in Munich, Nadoleczuy [7] found 13% of purulent and 46% of non-suppurative inflammation of the middle ear, while there were evidences of subacute inflammation in certain of the remainder. He concludes that middle ear inflammation is one of the most frequent complications of measles.

The ear is involved in 24% of cases of diphtheria, as shown by the investigations of Spangenberg, and is frequently the seat of a purulent infection in typhoid fever.

Sprague [8] shows that at least 10% of cases of scarlet fever leave aural complications, many of them without pain. He protests strongly against the notion which prevails in some localities that a running ear is one of the safe-guards in scarlatina. There is unanimity of opinion that in all these acute purulent infections of the middle ear, incision of the drum should be made early, and it should not be simply a puncture. but a free incision. It is only in this way adequate drainage can be secured.

MASTOID AND LATERAL SINUS.

The more notable contributions to the literature of the ear during the past year have been toward a better development of the operative technique in the treatment of the graver surgical diseases, especially those of the mastoid and lateral sinus.

Advocates of the more conservative measures in the treatment of chronic suppuration continue to report excellent results by the use of minor operations. Blake,[9] especially, says that "it is far more easy to operate than to judge." He believes that the radical operation is a most useful procedure, but that its application should be limited to those cases where it is absolutely necessary. He thinks that many cases can be cured of long standing discharge by carefully studying out the source, and closing off the Eustachian tube, curetting the walls of the tympanic cavity, and other necessary minor surgical operations.

The radical operation for the removal of chronic caries and suppuration within the temporal bone has apparently increased in favor during the year. That success depends upon thorough work in the bone itself is emphasized by Dench [10] who insists that the following points are necessary:

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[3] Schutz: Inaug. Dissertation, Bern, 1905

[4] Hastings: Archives of Otol., xxxv, No. 1.

[5] Bryant: Transact. Am. Otol. Soc., May, 1905

[6] Maire: Arch. f. Ohrenheilk.

[7] Nadoleczuy: Jahrbuch der Kinderheilkunde, Bd. lx.

[8] Sprague: Am. Jour. of Med. Sciences, Sept., 1905, 423.

[9] Blake: Trans. Am. Otol. Soc., 1904, 484.

[10] Dench: Arch. of Otol., Feb., 1905.

(1) The complete removal of the upper wall of the canal so as to thoroughly expose the tympanic vault.

(2) The removal of the posterior wall of the canal, avoiding the facial nerve, carrying out this step so completely as to entirely obliterate the posterior tympanic space.

(3) The obliteration of the hypotympanic space by removal of the inner extremity of the inner wall of the canal in order to expose freely that part of the middle ear which lies below the level of the lower wall of the bony meatus.

(4) A thorough curettage of the tympanic orifice of the Eustachian tube to cause a complete closure of this channel, and thus prevent a reinfection from this source.

That the radical operation is not unattended with danger is evidenced by the fact that Dench records two fatalities, and there are undoubtedly other cases, not reported in the literature.

The result of a minute examination of 14 cases of death following radical mastoid operation is published by Politzer[11] who found infection through the ligament of the oval window, through the round window promontory and through the floor of the tympanum into the first turn of the cochlea.

Grunert[12] has observed a few cases of sinus thrombosis with ligation of the jugular vein and free opening of the bulb having symptoms due apparently to venous stasis. These symptoms are similar to those of a beginning meningitis.

The cephalic cry, intense headache, and marked excitement of the patient are all present.

Unlike meningitis, however, at all times the appetite remains good, and the senses are perfectly clear. Edema of the lower eyelids is observed, and also stasis of the retinal veins going on to choked disc.

He also reports a case of encephalocele following the exposure and opening of the jugular bulb.

Richards[13] presents an extremely interesting monograph upon infective sigmoid sinus thrombosis, based on an observation of forty-four cases. This condition is practically always secondary to mastoid involvement, and in certain cases, but not necessarily so, there is direct extension through diseased bone overlying the sinus. In the endeavor to reach these septic emboli, all diseased bone should be removed, and the sinus exposed from the knee to a point near the jugular bulb.

The diagnosis of the presence of a clot in the vessel, after it has been thoroughly exposed, is exceedingly difficult. As the writer truly observes, experience teaches us that the appearance and " feel " of a sinus do not necessarily indicate what is within it. In suspected cases he advocates the opening of the vessel regardless of its appearance, of its feel, or of its pulsation. While recognizing the danger of infecting a possible healthy sinus by this procedure, he states that he has never seen an ill result follow from opening the vessel, and feels that this danger is remote as compared with leaving a suspected vessel unexplored.

In the same journal for February, 1906, is a lengthy article by Kerrison, who discusses the pathological conditions involved in this disease. He believes that on no account should a sinus be opened in the absence of septic symptoms, and especially if there be a covering of granulations. He voices the sentiments of many when he states that establishing a communication between a septic cavity and the inside of the lateral sinus, in case the latter contains a free venous current, is placing the patient in jeopardy because of the likelihood, nay, almost certainty, of thrombosis later.

In this connection it is interesting to note that Alexander[14] reports a case of infected thrombosis of the lateral sinus without temperature or chills.

BRAIN COMPLICATIONS.

Alexander[15] divides meningitis into three groups, — serous, suppurative and tubercular. According to this author, the serous is a prodromal stage of either the tubercular or suppurative, and eventually develops into one or the other of these two. The suppurative may start as a circumscribed or diffuse external pachymeningitis, developing into an internal pachyleptomeningitis, and eventually into a leptomeningitis. In the acute suppurative meningitis the species and virulence of the minor organisms play an important rôle.

The tubercular meningitis is inaccessible to operative measures. During the last two or three years several *bona fide* cases of suppurative meningitis have yielded to operative measures.

Serous meningitis is especially favorable for operative interference. Lumbar puncture plays an important part in establishing a diagnosis.

DEAF-MUTISM.

Ptomaine poisoning as a cause of deaf-mutism is one rarely encountered. Two cases are reported by Bryant.[16] In the first there was complete loss of hearing following the ingestion of ice cream, accompanied by symptoms of acute gastro-enteritis.

There was no clear history in the second case, but a very marked degree of deafness followed a " fever." Inspection of the ears showed no abnormality.

Bryant is inclined to believe that some of the cases classified under Ménier's disease may be in reality neuritis of the auditory nerve and of toxic origin, possibly ptomaine.

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Deaths from Wood Alcohol. — Two deaths occurring in Brooklyn last week are attributed to cocktails adulterated with wood alcohol. The saloon keeper who sold the compound has been arrested on a charge of homicide. A ten-gallon keg of wood alcohol was found in his place of business. — *Medical Record.*

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[11] Politzer: Allegm. Wiener med. Zeitschrift, Dec. 6, 1904, No. 49.
[12] Grunert: Arch. f. Ohrenheilk.
[13] Richards: Archiv. of Otol., xxxiv, No. 5.
[14] Alexander: Arch. f. Ohrenheilk., Bd. 64, S. 88.
[15] Alexander: Deutsch Wochenschrift, No. 39, 1905.
[16] Bryant: Transact., Am. Otol. Soc., May, 1905.

Reports of Societies.

ABSTRACT REPORT TWENTY-FIRST ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS.

Washington, May 15 and 16, 1906.

The President, Dr. Frank Billings, Chicago, in his address, expressed his profound appreciation of the honor of presiding over the Association. He called particular attention to the length of the program, which by the variety of subjects considered was indicative of the scientific work of the members. He desired that certain subjects not likely to provoke discussion should be read by title, for publication in the transactions, and that others should be read only in abstract. He recommended the advisability of having each year one or two subjects treated as a symposium to present the practical side from all points of view as he believed this would stimulate a greater amount of team-work in the Association.

MECHANISM OF THE BLOOD PRESSURE CHARGES IN MITRAL INSUFFICIENCY.

Dr. W. J. MacCallum, Baltimore, read this paper, which consisted of a report upon experimental studies in the production of cardiac murmurs with special reference to mitral insufficiency. He exhibited a series of enlarged charts showing the results of experimental production of mitral insufficiency and recorded blood pressures. It was shown that the arterial blood pressure, in most instances, falls when mitral insufficiency is produced, and that there was a certain stagnation of blood in the auricles and in the pulmonary system; there was in every case a constant stagnation of blood, or an overflowing, in the pulmonary circulation at the end of systole.

EXPERIMENTS ON VENOUS BLOOD PRESSURE AND ITS RELATION TO ARTERIAL PRESSURE IN MAN.

Dr. Henry Sewall, Denver, read this paper. He considered the venous system as divided naturally into two departments, — the superficial and the central. The veins of the first were peculiarly subject to various external stimuli and might be used to deduce conclusions as to the state of the circulation in all other parts of the vascular circuit. Of the internal veins, those of the splanchnic system formed a homogeneous group which, from its great capacity and special relation to arterial blood pressure through the depressor nerve of the heart and the vasomotor center, made it necessary to consider the splanchnic circulation in every estimate of arterial blood pressure. He considered the physiology of the depressor nerve as applied to clinical conditions and described his blood pressure gage for measurement of venous blood pressure, consisting of a spiral spring on a piston with a disk at the bottom, any pressure on the button causing tension of the spiral spring and enabling one to read off the amount of pressure. He said that blood pressure in the superficial veins depended upon the ratio of input to outflow, the former being greatly increased by muscular exercise and somewhat by heat; the latter was decreased by cold, causing contraction of veins, and by obstruction to the entrance of blood into the heart. In some persons, he said, venous pressure falls, in others rises, during digestion, the digestive rise being probably due to obstructive elevation of pressure in the right auricle. The movements of respiration, aside from their aspirating effect on the venous blood, had fundamental importance as an aid to the transfer of blood from arteries to veins. With deep inspiration the peripheral veins swelled and the pressure within them increased. This was often evident with ordinary inspiration. It could be demonstrated by a strip of paper gummed on one side, stuck by the side of a vein of the hand or forearm and resting across the vessel like a lever. It could be shown that both cardiac and respiratory variations of arterial blood pressure were frequently transmitted through the capillaries. He considered the relations of venous to arterial pressure in diseased conditions and the characteristically high venous pressure in gout and lithemia. In arteriosclerosis there was low venous pressure with rise of that pressure when the cardiac circulation was impaired.

RUPTURE OF THORACIC ANEURISM INTO SUPERIOR VENA CAVA.

Dr. W. Howard Fussell, Philadelphia, reported this case in which diagnosis was made before death. On the third day after the beginning of the symptoms he had appeared with the face blue, neck and chest edematous, as were also the arms, though at that time physical signs of aneurism could not be made out. He rapidly developed pleural effusions, and the other symptoms increased in severity; on the fourth day there was a systolic murmur and increased heart dullness; no difference in pulse, but difference in blood pressure; left 189, right 160. Died of exhaustion forty-one days after entering the hospital. The loud continuous murmur, said to be characteristic of this condition, was absent.

A CASE OF VARICOSE ANEURISM OF AORTA AND SUPERIOR CAVA.

Dr. Charles Cary, Buffalo, presented this contribution, the case being that of a man, who, while engaged in the hardest kind of labor, was suddenly seized with the classic symptoms of rupture of the aorta into the cava. The first appearance was that of striking cyanosis of the head, face and hands, his face being swollen and eyes closed by edematous lids. Breathing became more labored and edema greater and the patient died on the fifth day. The heart itself was large and flabby.

Dr. J. H. Musser, Philadelphia, in the discussion of the subject, exhibited a specimen that had produced pressure upon the esophagus, the patient, thirty-one years of age, admitted with signs of aneurism. In this case there was bronchial pneumonia and sudden death.

Dr. J. P. C. Griffith, Philadelphia, presented the specimen upon which the paper of Beebe and himself had been based, the case being that of a Chinaman, and there was a loud sounding murmur absolutely continuous. Of the twenty-nine cases they had collected all showed a characteristic continuous murmur.

BRADYCARDIA AND STOKES-ADAMS DISEASE.

Dr. George Dock, Ann Arbor, presented this paper, which was read by title:

EXPERIMENTAL STUDY OF CARDIAC MURMURS.

Dr. W. S. Thayer and **Dr. W. G. MacCallum**, Baltimore, presented this paper which consisted of some studies on the heart sounds and of cardiac murmurs by direct auscultation of the exposed dog's heart, with considerations concerning the application of the results obtained to the auscultation of the human heart. He suggested the great value of the demonstrations to medical students if they could be arranged to present to classes.

Dr. MacCallum described particularly the technique employed in the work and the instruments that had been found useful. The lesions had been made by means of small hook knives, passed in and turned; stenosis by the use of clamps and ligatures.

Dr. L. F. Barker, Baltimore, said that investigations of this kind were very valuable as being of a pathologico-physiologic nature which would help the clinician more than pathologic anatomy. He hoped a great deal more work of this kind would be done.

INTRAVENOUS INJECTIONS OF NICOTINE, WITH SPECIAL REFERENCE TO EXPERIMENTAL ARTERIOSCLEROSIS.

Drs. I. Adler and **O. Hensel**, New York, contributed this paper. They showed that intravenous injections of pure nicotine produced lesions in the aorta of rabbits almost identical with those caused by adrenalin and digitalis. They discussed the results with special reference to their bearing upon the pathology of human arteriosclerosis. Modern opinion seemed to be that human arteriosclerosis was a degeneration of the deeper layers of the vessel walls, but if the difference in structure of the rabbit's aorta and the human aorta was taken into consideration, one being a thin simple structure, and the other a complicated one, the analogy between these processes in the rabbit's vessels and the process in human arteriosclerosis could be understood.

CLINICAL OBSERVATIONS ON ARTERIOSCLEROSIS FROM ALIMENTARY TOXINS.

Dr. C. S. Bond, Richmond, Ind., read this paper, which was based upon twenty years' observation among private patients, during which time one hundred and fifty cases had been collected. The cases were not those of syphilis, alcoholism, or lead poisoning, nor senility, but were due to toxins in the alimentary canal.

Dr. J. L. Miller, Chicago, said that it seemed to him that the evidence during the past year had favored the toxic rather than the pressure element as producing this condition. As to whether it was analogous to arteriosclerosis in man, a number of years ago changes in peripheral vessels in elderly people were shown to be calcification of the media with secondary changes in the intima, and if that were true there were changes in man closely resembling those in the rabbit.

Dr. Jos. Collins, New York, said that experimental arteriosclerosis produced in this manner would probably help us to elucidate what the initial step is in the pathogenesis. Dr. Brooks and himself had been conducting some experiments in producing the lesions by the inhalation of tobacco smoke, maintaining rabbits in such an atmosphere for fifteen minutes at a time. This did not produce the necrotic changes caused by the injections, nor did it cause rise of blood pressure, and he thought that brought them a step nearer to finding out what the initial step is.

Dr. Adler said, in closing, that the experiments had not been made in an effort to discover the cause of arteriosclerosis in general, but simply to study the effect of nicotine upon the aorta of the rabbit and to see how far that was comparable to the changes occurring in man. The studies had been purely histological.

REPORT OF CASES OF TRICUSPID INSUFFICIENCY IN THE COURSE OF PERNICIOUS ANEMIA.

Dr. Robert B. Preble, Chicago, reported a case of pernicious anemia occurring a few months ago in an old lady who had an extremely well marked, positive, pulse in the external jugular vein with none of the ordinarily associated phenomena of such a condition. A few days later he had seen another case of the same kind. He believed the condition a more frequent one than had been thought.

TYPHOID SPINE WITH DEFINITE DEPOSITS OF BONE ALONG THE VERTEBRÆ AND RELATIONS OF THE WHOLE GROUP OF INFECTIONS TO THE PRODUCTION OF SPONDYLITIS.

Dr. Thomas McCrae, Baltimore, read this paper, which was based on the report of a patient with typhoid fever and the usual clinical features of typhoid spine. Definite bony changes were found in the vertebræ. In a second patient, with a paratyphoid infection, the same changes resulted although a previous gonococcus infection might have played a part in their production. He thought that the cases showed that in some cases of typhoid spine there were definite bony lesions and more or less of an organic process.

Dr. James B. Herrick, Chicago, was glad to see the effort to take the condition from the category of functional diseases or neuroses. He had seen several cases where there was nothing to suggest a neurosis although nothing definite of an organic nature could be made out, and in one case there were definite organic processes made out.

Dr. W. S. Thayer, Baltimore, said one of the reasons why the condition had been looked upon as neurotic was the indefiniteness of the pain complained of. The first patient of Dr. McCrae's was a man whose friends said that he was always a very reasonable man, not at all neurotic, and yet he was very hysterical.

Dr. Jos. Collins, New York, referred to the relation of gonococcal spondylitis to general spondylitis and had had a patient in recent years in which the condition of spondylitis was diagnosticated and when the seminal vesicles were slit up and drained had rapidly improved. He did not think that typhoid spine should be regarded as an organic disease as they completely recovered in many instances. In some cases, of course, it was possible.

Dr. James Tyson, Philadelphia, called attention to a case of spondylitis verified by x-ray as an organic exudate, which had begun as an ordinary wry neck. He felt inclined to throw all these cases into the category of infective inflammations.

Dr. Solis Cohen, Philadelphia, thought that something more than spondylitis was the cause of the pain in these typhoid cases as there might be a considerable lesion and very little pain.

Dr. McCrae said in closing that he did not want to be understood as claiming that all cases of typhoid spine were associated with organic changes, but that a certain number were. It must be applied to a certain definite condition and not to every case of pain in typhoid fever. The x-ray had shown very definitely the bone lesion.

PERINEPHRITIS OR "CAPSULITIS" AS A CAUSE OF SYMPTOMS SIMULATING THOSE OF STONE IN THE KIDNEY.

Dr. James A. Tyson, Philadelphia, read this paper, which gave his experience with a number of cases simulating nephrolithiasis where operation failed to discover stone in the kidney or adjacent tracts and which had led the writer to look for other possible causal conditions and resulted in the discovery that certain of these cases were associated with tough adhesions of the perirenal fat and capsule and sometimes with the substance of the organ and with cicatricial-like markings on the capsule, which might be the results of an inflammation which, for convenience, was named perinephritis. In a discussion of a like subject at the meeting of the Association of Physicians in 1905 Dr. Forschheimer had reported like experiences. By perinephritis he said he meant an inflammation of the capsule and other tissues surrounding the kidney, of such a nature as to produce contraction or cicatricial markings in the capsule, whence also the cortex of the kidney might be more or less invaded. The term was not new, but was used by Rayer in his book on "Diseases of the Kidneys," published in 1839. Three cases were reported which justified the conclusions reached. They were relieved by operation, splitting of the capsule and resection of the kidney. The cases had been examined by the use of the x-ray with negative results.

DISSEMINATED SCLEROSIS.

Dr. Joseph Collins, New York, said in this paper that the belief that the disease is of extreme infrequency in this country was unjustified, though the diagnosis was rarely made. It had been diagnosticated eighty times in the examination of ten thousand cases of nervous diseases, functional and organic, and some of these had been verified by autopsy. Many others, wholly atypical in the beginning, had become more typical while under observation. The clinical aspects of the disease in its various types was discussed with particular reference to the relative frequency of the so-called "classical" and "atypical" forms and of the necessity of diagnosticating the latter. There were thirty-nine cases without any of the so-called pathognomonic signs. He believed the diagnosis of the disease was made much less frequently in this country than should be the case.

Dr. B. Sachs, New York, said that the neurologists had felt badly hurt by the statements of European neurologists in this regard but he thought they should not feel so in view of the fact that the question was beset with so many difficulties. During the past eighteen years he had had 220 cases of organic nerve disease out of which 15 were those in which the diagnosis of multiple sclerosis could be made and 5 others in which the diagnosis was doubtful. In spite of all he thought that the diagnosis was one that could not be made with certainty in a large porportion of cases. There was much difficulty, he said, in differentiating between syphilis of the cord and disseminated sclerosis. He also believed that the disease was a little rarer in this country than in Europe.

Dr. Wharton Sinkler, Philadelphia, thought the disease more common than was supposed a few years ago, and said that since the attention of the neurologists had been called to the situation a good many more cases had been discovered, but he thought there was danger of going to the other extreme and making the diagnosis too frequently.

ON MENTAL DISORDERS ASSOCIATED WITH ACUTE CHOREA.

Dr. B. Sachs, New York, read this paper. The writer reported a number of clinical experiences showing the varying character of mental disturbances associated with acute chorea and proving the simultaneous development of mental and choreic disturbances in the course of, and following upon, toxic and infectious processes, although he recognized the existence of a form known as "chorea insaniens." He insisted that these cases were entirely different from the ordinary cases of chorea due to functional disturbance.

Dr. Wharton Sinkler, Philadelphia, reported a case occurring in a young Italian girl, who six weeks before had had an attack of scarlet fever. The chorea was so excessive that she had to be confined to bed with a sheet. She had endocarditis and her temperature reached 108.5 by rectum. She died with every evidence of marked septic infection.

Afternoon Session.

RECURRENT ACUTE PULMONARY EDEMA.

Dr. David Riesman, Philadelphia, read this paper. He said the principal forms of edema described in textbooks were, (*a*) the acute inflammatory edema accompanying lobar pneumonia and other acute inflammations of the lungs, (*b*) and a passive edema occurring usually as a terminal lesion in heart disease, Bright's disease, and, at times, in pneumonia. There were, however, several other forms which, though rare, were nevertheless of much clinical interest. One to which the writer desired to call special attention was an edema that recurs from time to time, and in each attack seems to place the patient in imminent danger of dissolution; the onset was acute. The lungs and the air passages rapidly filled up with fluid which gushed from the mouth and nose. The fluid was serous, frothy, sometimes blood tinged, rather resembling raspberry vinegar. Dyspnea was intense; the patient either ashy pale, or deeply cyanosed, and gasping for breath. Over the chest the characteristic râles of edema. Pulse full and bounding, or imperceptible at the wrist. At the height of the attack the patient appeared to be at the point of suffocation. Like angina pectoris, the first attack of such an acute edema might kill; but more often the condition recurred. Acute pulmonary edema of this type had been met with by the writer in association with (*a*) chronic interstitial nephritis, (*b*) arteriosclerosis, (*c*) angina pectoris, (*d*) asthma. A peculiar edema that, in the acuteness of its onset and the gravity of its symptoms, resembles the one under consideration, was that sometimes following paracentesis thoracis, of which, under the head of albuminous expectoration, the writer recorded an example. Pathogenesis was obscure. Varied in different cases, in some derangement of vasomotor mechanism through toxin; in others sudden weakening of left ventricle. Treatment consisted in venesection when there was cyanosis and high tension pulse; dry cupping, atropin and diffusible stimulants, with treatment of the underlying conditions during intervals. The writer reported five cases.

Dr. Francis P. Kinnicutt, New York, said that a hypertonicity associated with vasomotor spasm might account for the sudden pulmonary edema.

Dr. E. J. Hare, Philadelphia, said what we meant was a vascular spasm and not a vasomotor spasm; the pulmonary area had a poorly developed vascular system in the sense of a vasomotor supply. His feeling in regard to the cases was that they were due to some toxemia rather than to any change in the vessels themselves.

Dr. Meltzer, New York, advocated bleeding the patients internally by the use of nitroglycerin, and said the administration of adrenalin had just the opposite effect. He considered the use of adrenalin in pulmonary edema as very dangerous, but highly recommended nitroglycerin.

Dr. Janeway, New York, had had a case of pulmonary edema with perspiration and evacuations from the bowels showing that it was not simply a leakage of serum into the air cells. He believed there was something more than simply changes in the arteries or heart.

Dr. Shattuck, Boston, said with cases of recurring pulmonary edema he had had no experience, but with acute pulmonary edema he had. He recalled a case of marked arteriosclerosis with intense pulmonary edema in which the administration of nitroglycerin relieved the condition in five minutes. He highly commended the use of nitroglycerin and morphia in these cases.

Dr. Kinnicutt, New York, inquired concerning the experience of the members with the use of adrenalin and referred to a case in which he was persuaded to use it and had never seen more rapid relief.

Dr. Forschheimer, Cincinnati, had used adrenalin with very good results. He used it with the idea of contracting the pulmonary vessels themselves.

Dr. Miller, Chicago, confirmed the statement of Dr. Meltzer as to the use of adrenalin and said it was common in working with animals with pulmonary edema to have rapidly fatal result from adrenalin.

Dr. W. S. Thayer, Baltimore, said that from his experience while pressure in the greater circulation rises, the pulmonary circulation did not vary much, suggesting that there was not much contraction of the pulmonary vessels.

Dr. Solis Cohen, Philadelphia, in discussing the subject, said that he had had a patient under his care, who for angina pectoris had been taking large doses of nitroglycerin and to whom when he found him with pulmonary edema he had given adrenalin and the edema subsided.

Dr. Meltzer, New York, said that those who gave adenalin for edema did so to produce contraction of the blood vessels of the lungs, but if they were contracted so were the other blood vessels so that the amount of blood in the lungs remained the same. Nitroglycerin, on the contrary, removed the blood. He did not believe adrenalin should be used in these cases.

Dr. R. C. Cabot, Boston, said that in the last case he had had he gave nothing and the patient promptly recovered.

Dr. W. J. MacCallum, Baltimore, thought that the good effect of adrenalin in some of these cases might be due to the vigor given to the left ventricle by its use.

Dr. Frank Billings, Chicago, said that in the cases he had seen there was great suffering and one had little time to consider what to do. The remedies that had been most satisfactory in his hands had been morphia and in connection with it nitroglycerin.

Dr. Babcock recommended the use of atropin hypodermically in these cases and had seen very excellent results with its use in one case.

Dr. J. H. Musser, Philadelphia, called attention to the element of shock in these cases, because of which he had always been led to use morphia very early; in addition to that he used nitroglycerin. It was necessary, he said, to bear in mind the differentiation between edema and acute dilatation of the heart as the treatment was diametrically opposite.

Dr. James Tyson, Philadelphia, said he never wanted a more effective remedy in these cases than atropin. He had frequently relieved edema of the lungs due to large doses of pilocarpin by the use of atropin.

Dr. David Riesman, Philadelphia, thought morphia in small doses always indicated. In cases with full bounding pulse venesection or nitroglycerin was indicated.

SOME DANGERS OF THORACENTESIS WITH SPECIAL REFERENCE TO PNEUMOTHORAX.

Dr. George G. Sears, Boston, the writer, reported seven cases, in children. Cause of death in most cases was ascribed to irritation of the pulmonary fibers of the vagus. He had had four cases also at hospital; one a man of forty-five; after the second aspiration signs of pneumothorax developed. Another, a man of thirty-two, who entered with pneumonic process in the left lung; aspirated and forty ounces of blood withdrawn; pneumothorax developed. A third, signs before aspiration of air in the chest; after aspiration pneumothorax developed quickly. Fourth, pneumonia with accumulation of fluid; two unsuccessful efforts at aspiration made; pneumothorax developed and patient died. The majority of cases recovered. He said a serous effusion may be converted into an empyema. He warned against the reckless use of the needle until other resources had been exhausted.

Dr. Henry Koplik, New York, said that with children the question was a serious one; that if there was no fluid present the air was not absorbed well and the children did badly. He referred to two cases seen recently in which the children did very badly. He made the point that in these cases if there is fluid present and pneumothorax is produced accidentally, the chest should be opened promptly.

Dr. Janeway, New York, had seen a number of cases in which aspiration had been followed by pneumothorax.

Dr. Futcher, Baltimore, thought we should not fail to recognize the frequency of pneumothorax in aspiration of the chest. Three years ago Dr. Emerson had reported, at the Johns Hopkins, a number of cases, nine or ten due to paracentesis.

Dr. Shattuck, Boston, referred to the possibility of the condition being due to the pump working backward and had had such a case in which the working of the pump had been left to an assistant.

Dr. Alfred Stengel, Philadelphia, had twice had it happen that the pump worked wrong, in one of which it had been left to an assistant who turned it the wrong way, but the sound as air was driven into the chest was recognized and the patient recovered in a very short time. In the second case the same thing happened, but the sound soon made them aware of what was happening.

Dr. W. S. Thayer, Baltimore, had had an experience of the same kind.

Dr. Frank Billings, Chicago, recalled the fact that a few years ago a method of treating tuberculosis by which air was forced into the chest was tried, but it was abandoned and nitrogen substituted; some fatalities had followed the use of both these agents, but Dr. Murphy had practiced the method for some years and the accidents were few.

Dr. Meltzer, New York, thought the cases of sudden death might be due to air embolism.

PRINCIPLES OF THERAPEUTICS BASED ON PATHOLOGICAL PHYSIOLOGY.

Dr. R. C. Cabot, Boston, read this paper. He said that treatment based on pathological physiology had one of three aims, — to supplement nature, to oppose nature, or to modify or guide nature. Such treatment was not as satisfactory as etiological treatment nor as bad as symptomatic treatment. As examples of treatment, aiming to imitate or supplement nature, were, antitoxic and bacterial sera; removal of gangrenous appendix; removal of hidden sorrow (Freud's psychoanalysis); bed in all asthenic cases; diet in fevers; following instinct; setting a broken bone; passive hyperemia; and active and passive exercise. Examples of treatment to oppose nature were: Forced feeding; restriction in delirium; use of enemata, etc. Examples of treatment to modify the efforts of nature were: Diminishing hyperemia, guiding nature; hydrotherapeutics and gymnastics; correction of diarrhea, etc. He defined the principles, boundaries and application of these forms of treatment, and said they were based on theory and might do harm, but only by theories constantly controlled could science progress; empiricism alone was sterile of scientific progress. He said that treatment based on pathological physiology was not the best type of therapeutics, nor the worst; it was intermediate between etiological and symptomatic.

THE PATHOLOGICAL PHYSIOLOGY OF CHRONIC ARTERIAL HYPERTENSION AND ITS TREATMENT.

Dr. Theodore Janeway, New York, said hypertension was a symptom only, but of sufficient importance to demand independent consideration. He considered its clinical associations in chronic nephritis, arteriosclerosis and cases of unknown origin and the probable physiologic mechanism of its production. He considered it a compensatory manifestation; a reaction against disease. This was, of course, only a theory, but the only one which corresponded to the bulk of facts. There were three lines of treatment,—first, preventive; second, adjuvant; third, emergent. Preventive consisted in rest in bed, readjustment of mode of life, the exclusion of all hypertensive influences, as the excessive use of tobacco, etc. The adjuvant consisted in such remedies as digitalis as in cardiac insufficiency. Emergent, remedies used where life hangs in the balance, as nitroglycerin, venesection, etc.

THE THERAPEUTICS OF INSUFFICIENT KIDNEY BASED UPON PATHOLOGIC PHYSIOLOGY.

Dr. Robert B. Preble, Chicago, said that as regards the consideration of the function of the kidneys as to secretion and excretion the mensuration of renal insufficiency was only reliable when the physical and chemical means for determining it were surrounded by great caution. As to treatment, it consisted in (*a*) protection of the kidneys (1) by lessening demands upon them, (2) by substitution of the compensatory activity of the other excreting organs; (*b*) stimulation of the kidneys directly or indirectly. As eliminants, sweating, purgation and venesection, and he thought that venesection should not be put off as a last resort.

THERAPEUTICS BASED UPON THE PHYSIOLOGIC PRINCIPLES OF ENVIRONMENT IN HOSPITAL AND PRIVATE PRACTICE.

Dr. Walter B. James, New York, discussed the place of environment in therapeutics, dividing it into psychical and physical, with special reference to fresh air, or out-of-door treatment to other diseases than tuberculosis, and he especially desired that there should be more careful consideration of the subject of environment in hospital practice, deprecating the custom of putting patients to be operated upon by the side of those recovering from ether, dying persons beside those with the same disease and placing patients in bad conditions of light, temperature and ventilation.

THE PHYSIOLOGIC PRINCIPLES OF FEEDING IN TYPHOID AND IN OTHER FEVERS.

Dr. Francis P. Kinnicutt, New York: This paper consisted of a digest of metabolism experiments in some of the specific fevers with a view of determining the value of different kinds of feeding, and a study of hospital statistics of typhoid fever with a view of determining the influence of different diets upon the development of some of its complications. In 733 cases with liberal diet there were 11.3% relapses, 4.7% hemorrhages, 1.3% perforations, 9.47% mortality; with 4,277 cases, fluid diet: 11.5 relapses, 8.93 hemorrhages, 2.43 perforation and 10.68 mortality, which would seem to furnish evidence that intestinal accidents were less frequent in mixed diet than with fluid diet. He thought a different management of cases advisable, not indiscriminate feeding, but diet suitable to the individual case. In this way he believed much suffering might be avoided and also the danger of secondary infections lessened and a quicker convalescence secured.

THE PHYSIOLOGIC LIMITATION OF RECTAL FEEDING.

Dr. D. L. Edsall, Philadelphia, read this paper, which was a review of the experiments relating to rectal feeding, indicating that the most favorable effects to be expected by present methods were far below the nutritional requirements, except in regard to the introduction of water and salts. Less than one sixth of the amount required to maintain equilibrium was taken up by the lower bowel and it was difficult to maintain anything approaching equilibrium. He did not anticipate any very great improvement in the method of rectal alimentation as the limitations were such as would keep it always at a very low point, though some artificial substance might be devised to increase its possibilities. Results with artificial proteid preparations had not been successful. Apparently the preparations of dextrine carbohydrates were better absorbed. He also thought there might be just a possibility that some method might be devised by which the iliocecal valve would admit material to the upper bowel more readily.

Dr. W. S. Thayer, Baltimore, discussing the subject of Dr. Kinnicutt's paper, said he had always felt that the rational way of feeding the typhoid patient was just as we would feed any other case of septicemia; if there were abdominal symptoms a milk diet would be indicated. He thought the whole question had been summed up in 1889 by Dr. Shattuck and there was not much more to be said, that was that we should treat the patient rather than the disease.

Dr. Thomas McCrae, Baltimore, agreed with Dr. Kinnicutt, that one should study the individual patient with regard to diet, but he desired to place himself on the side of the advocacy of simple, liquid diet, during the febrile period. He thought that 75% of the patients would go through the attack successfully no matter what diet was employed, but we could only keep on the safe side with the simple diet. He did not think it safe to attach too much importance to such comparisons as Dr. Kinnicutt's statistics showed.

Dr. E. J. Hare, Philadelphia, indorsed the idea of feeding typhoid fever patients as liberally as possible. His own personal method, was during the first ten days to put on a milk diet and then when the patients had adjusted themselves to the new conditions and to the disease put them upon liberal diet, carbohydrates, fats, aided by diastase and pancreatin. He thought the method of animals should be followed, to go off and hide for several days and eat nothing.

Dr. Meltzer, New York, expressed his great appreciation of Dr. Jones's paper, especially as to the ideas in regard to kindness to patients. He agreed with Dr. Kinnicutt as to liberal diet in typhoid fever, whether mixed or not.

Dr. Shattuck, Boston, said he had written more or less upon the question and that he had been using the liberal diet now for a long time, feeding the patients according to their digestive powers, rather than according to the disease itself. He was sure that in this way the patients got over the disease better, with a shorter period of convalescence.

Dr. Henry Koplik, New York, had been following the principles of Dr. Kinnicutt and tried to avoid the extremes of emaciation that occurred with patients kept on liquid diet for weeks. Each case was treated on its individual merits. Perforations had occurred at periods when patients were on fluid diet.

Dr. Kinnicutt, New York, said, in closing the discussion, that he knew the statistics presented were not conclusive, but that they were as carefully prepared as statistics could be. He thought that inasmuch as

Dr. McCrae admitted that 75% of cases could digest anything it was rational to treat them with a liberal diet.

THE EFFECTS OF APERIENTS ON THE PERISTALSIS OF THE STOMACH AND INTESTINES.

DRS. F. PFAFF and **L. NELSON**, Boston, presented this contribution, which consisted of a description of normal peristalsis as observed in the exposed intestines of animals in a salt bath and the comparison of the results with those obtained from a series of observations of peristalsis in animals made by the use of the x-ray. Also the effects of certain aperients on peristalsis in the stomach and intestines. Croton oil produced intense peristalsis as to force, but diminished number of movements. Aloes, podophyllin, scammony, rhubarb, cascara, senna and gamboge were experimented with. The first three only increased peristalsis of the stomach. Senna and gamboge acted only on the small and large intestines.

DR. MELTZER, New York, said that the action of the stomach and intestines in the saline bath were not those of the normal condition.

DR. E. J. HARE, Philadelphia, spoke of the selective action of the intestines, their ability to hold some substances and pass others on; sometimes the purgative would be carried on without removing the food.

THE THERAPEUTIC ADVANTAGES OF A REFINED AND CONCENTRATED DIPHTHERIA ANTITOXIN.

DR. WILLIAM H. PARK, New York, said that the comparative results in over a thousand cases indicated that the rashes and other deleterious after effects occurred much less often and were, on the average, less severe in the cases that were observed with controls. At the close of the session he demonstrated his methods of preparing the antitoxins.

(To be continued.)

Recent Literature.

Ophthalmic Neuro-Myology. By G. C. SAVAGE, M.D. Thirty-nine full-page plates and twelve illustrative figures. Pp. 210. Published by the author, North Nashville, Tenn. 1905.

Anything in regard to ocular muscles coming from the pen of Dr. Savage would naturally become a matter of interest to the ophthalmologist and this is true in the present instance. His latest book on this subject is a study of the normal and abnormal muscle action and the relations which exist between them and certain hypothetical brain centers. It is intended to be considered as a companion volume to "Ophthalmic Myology" and probably the best idea of its scope and bearing may be obtained from the following statement contained in the preface: "The hypothesis on which neuro-myology is founded may be stated as follows: There are eight conjugate brain centers in the cortex, by means of which the various versions are effected, and one conjugate center by which convergence is caused. These conjugate centers act alike on orthophoric and heterophoric eyes, and when there is only one eye. Each of these is connected with two muscles, and the work done by the center and its muscles, under volition, is normal work. The conjugate centers have no causal relationship with heterophoric conditions, nor have they any power for correcting them. There are twelve basal centers, each connected with only one muscle. If the eyes are emmetropic-orthophoric, these centers are forever at rest, but when there is any form of heterophoria, one or more of these centers must be ever active during all working hours. These centers do not cause heterophoria, but stand ready to correct. Under the guidance of the fusion faculty, each basal center stands ready to act on its muscle, whenever there is a condition that would cause diplopia. They may be called fusion centers." The book contains 210 pages which are divided into four chapters, the first describing the ocular rotations and the muscles effecting them; the second, the brain centers controlling the ocular muscles; third, ametropia and pseudo-heterophoria; fourth, compensating heterotropia, and "Steele's working rules" for shifting cylinders. Although there may be those who may not entirely agree with Dr. Savage in respect to some of the statements contained in "Ophthalmic Neuro-Myology," still its novelty will certainly appeal to both the neurologist and ophthalmologist.

Refraction: Including Muscle Imbalance and the Adjustment of Glasses. By ROYAL S. COPELAND, A.M., M.D., Professor in the University of Michigan, and ADOLPH E. IBERSHOFF, M.D., Instructor in the University of Michigan. Pp. 144. Philadelphia: Boericke & Tafel. 1906.

An attempt to simplify the teaching of refraction is the excuse offered for this recent addition to the rapidly increasing literature on this important branch of ophthalmology. The elementary character of the book is in some respects a recommendation in its favor. In many books on refraction there is so much that is purely mathematical and so many theoretical demonstrations put in for the benefit of the advanced student, that the beginner is overwhelmed and and does not attempt the persistent study which is necessary for a proper understanding of the subject.

Manual of the Diseases of the Eye. For Students and General Practitioners. By CHARLES H. MAY, M.D. Fourth edition revised. New York: William Wood and Company. 1905.

The fact that Dr. May's "Manual on Diseases of the Eye" has in five years reached its fourth edition, two of which having been twice reprinted, is certainly a testimonial in its favor. This last edition has been very carefully revised and such changes have been made in the subject matter as progress demanded. Several of the illustrations have been replaced by others superior in execution, and a number of plates presenting colored drawings of external diseases of the eye have been added. Although the volume contains new material it still retains its former convenient size.

Essentials of Genito-Urinary and Venereal Diseases. By Starling S. Wilcox, M.D., Professor of Genito-Urinary Diseases and Syphilology, Starling Medical College, Columbus, Ohio; one time First Assistant Surgeon, National Home for Disabled Volunteer Soldiers; Central Branch Hospital and Contract Surgeon in the United States Army in the Philippines. Philadelphia and London: W. B. Saunders Company. 1906

This little volume is an example of the better sort of quiz compendium and is made up of a series of practical questions followed individually by concise replies. The latter are excellent as a rule, and fulfill the intention of the writer in supplying to the student many of the essential points of information concerning the subjects with which it deals. It is a work which we heartily commend to students. One of its good features is that the views expressed include the most recent methods of treatment, in condensed form. An example of this may be found on page 126 with respect to the treatment of renal colic which is tersely summed up thus:

"Morphine hypodermically in sufficient quantity and frequency to control pain. Hot applications, and in severe cases chloroform should be used to relax spasm. The ureteral catheter is sometimes used, during anesthesia, with the object of returning the stone to the pelvis of the kidney. Following an attack of colic the urine should be searched for the calculus. If pain persists, the stone is impacted and nephrotomy should be done without delay. An impacted calculus grows by phosphatic deposit. If the pain suddenly ceases, showing that the stone has passed, it is well to have a radiograph made to see if there are others in the kidney which are too large to be extruded. If such there be, operation should be done before urgent symptoms demand it."

It would be difficult to find so complete, so sound, and so practical a description of the treatment elsewhere in the literature.

On the Relations of Diseases of the Skin to Internal Disorders. By L. Duncan Bulkley, A.M., M.D. New York and London: Rebman Company. 1906.

The Influence of the Menstrual Function on Certain Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D. New York and London: Rebman Company. 1906.

The first of these books embodies some lectures which were delivered to physicians at the New York Skin and Cancer Hospital, in 1905. Except for the implication that the writer lays more stress upon the relationship between skin diseases and internal disorders than most dermatologists, the lectures simply embody the well-known principles which are to be found in all the textbooks.

The second of these publications, that on "The Influence of the Menstrual Function on Certain Diseases of the Skin," records all the writer has been able to gather from the literature of this subject, as well as from his own cases. It is shown that a great many and varied cutaneous conditions may at times be associated with this function. John T. Bowen.

The Treatment of Gonorrhea in the Male. By Charles Leedham-Green, M.B., F.R.C.S., Senior Surgeon to Out-Patients, Queen's Hospital, Oxford, Birmingham; Surgeon to the Birmingham and Midland Hospital for Children; Assistant Lecturer on Bacteriology, University of Birmingham.

This volume is an excellent treatise upon the subject indicated in the title and includes in a concise form much valuable information of a reliable sort with respect to all the phases of the disease and its treatment, including that of its complications. It is a work that may be unhesitatingly recommended to students and practitioners.

Pathogenic Micro-Organisms Including Bacteria and Protozoa: A practical manual for Students, Physicians and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College and Director of the Research Laboratory of the Department of Health, city of New York, Assisted by Anna W. Williams, M.D., Assistant Director of the Research Laboratory. Second edition enlarged and thoroughly revised, with 165 engravings and 4 full-page plates. New York and Philadelphia: Lea Brothers & Co. 1905.

This work has been extensively revised and partly rewritten in preparation of the present edition. As the author says, it has been designed for the student and physician, rather than for the laboratory worker. In the first part of the volume, the principles of bacteriology are considered. This includes instructive sections on the practical use of disinfectants and methods of house disinfection, and the sterilization of various articles. In the second part of the work, the bacteria pathogenic to man are individually described. The chapters dealing with the typhoid and dysentery bacilli are unusually complete. The third part is devoted to the protozoa. In summing up Councilman's investigations on the etiology of smallpox, the writer says, "One can easily see that such tiny bodies as these possible spores with no definite characteristic staining qualities would be with difficulty, if at all, differentiated from the mass of cell granules in the degenerated area of the lesion, and, as the outline and structure of most of the other forms seem to be easily disturbed, the whole question as to their nature is, from a morphological standpoint alone, a very difficult one to settle." In the appendix there is a short but clear presentation of the agressin theory of Bail. It will be regretted by some that the book contains no references to original articles and monographs. Taking the work as a whole, we consider it the best, as well as the most up-to-date work on medical bacteriology in the English language.

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SUMMER MEDICAL WORK.

It has been interesting to observe during the past few years the development of summer medical charities of various sorts. The cult of the open air has done much toward bringing about this happy result. We have gradually come to realize that simple care is the essential of treatment in various kinds and degrees of illness, and that patients do better under such conditions in the open than under the more elaborated arrangements for hospital life in the cities. So far as the matter has yet been worked out, this applies particularly to the tuberculous and to young children. There is, however, no adequate reason why many forms of chronic invalidism should not receive similar care during the summer months in salubrious localities.

We have before us three worthy charitable undertakings of this sort in behalf of the sick. The first of these is known as the Day Camp for Consumptives. It will be remembered that last year, somewhat as an experiment, the attempt was made to treat certain consumptive patients by means of a day camp, the patients returning to their own homes at night. The experiment has proved so far successful that a similar camp was established this year, which began its season the latter part of May. Tents, simple kitchen arrangements and a storehouse have been erected on Parker Hill at an elevation of 230 feet, which is the highest point within the limits of the city. The patients are brought to the top of the hill each morning and spend the day in the open air with physicians and nurses in attendance. Last year one hundred and twenty-eight patients attended the camp for longer or shorter periods, a large proportion of whom improved. It is an interesting fact that ten patients who were admitted after they were refused admission to the State Sanatorium at Rutland were so far improved that they were later accepted at Rutland. The cost both of equipment and maintenance for four months was less than $5,000. This camp is said to be the first of its sort in America, though several have been instituted in Berlin and other German cities. The enterprise is certainly worthy the consideration of the charitably disposed.

A second summer charity, which has been in operation for many years, is the so-called Milk Fund for the benefit of sick poor infants in Boston during the hot weather. In the appeal for support, which the trustees have recently sent out, it is announced that the charity is practical, economically dispensed, wholly unsectarian and prompt in its application. Recognizing the high infant mortality induced by hot weather and infected milk, the trustees plan to minimize this evil by the dispensing of proper milk to suitably selected infants. The whole matter is under the control of competent physicians, and, as in New York, will certainly accomplish much good in protecting the infant population from disease during the hot months of summer.

We have so frequently commented on the work of the Boston Floating Hospital that it is hardly necessary to do more than mention it again in this connection. The work of this well organized and popular medical charity will no doubt be enhanced this year by the use of a new and more ample boat, which we understand will not be entirely completed, but which, nevertheless, can be satisfactorily used. It is not to be questioned however, that the extra supply of room will inadequately fulfill the increasing demand. Few efforts to alleviate the sufferings of the children of a large city, and incidentally their mothers, are more prolific of results than the Floating Hospital. The boat is also fortunate this year in having separate docking facilities which should do much toward facilitating the work.

These and many other charities of a similar sort will occupy the attention of many philanthropic persons and physicians during the coming months. Their development, as we suggested at the outset, has been one of the most interesting and beneficent phases of modern hospital treatment. What we now have is no doubt merely a beginning, and we may look forward with confidence to a very greatly increased elaboration of summer work for the sick, as the years go by.

AMELIORATION OF THE CONDITION OF SCHOOL CHILDREN.

As we have previously had occasion to remark, one of the very best ways in which prophylactic medicine can demonstrate its usefulness is through the more careful supervision of school children. A bill to this effect has recently become a law in this state, and we note with satisfaction that the public school children in New York are receiving similar attention at the hands of the authorities.

In consequence of the results reported by the Health Department from its examination of public school children, showing that a large proportion of them were suffering from malnutrition, or more or less serious physical defects, one hundred and fifteen school principals some time ago applied to the New York Association for Improving the Condition of the Poor for its aid in ameliorating these conditions. They represented that glasses for defective vision, proper shoes and clothing, board in the country, good nourishment, medical attendance, and, in some instances, hospital care, were all required by these children. As a result of this appeal, the association has now organized a committee on the physical welfare of school children, with Charles C. Burlingham, formerly president of the Board of Education, as its head, the object of which is to make a systematic examination of all the defective children, classifying them in groups, according to their special needs, and affording them such relief as may be found practicable, both in the home and out of it. The following schedule of the committee's work has been determined upon:

(1) Study of Physical Welfare of School Children. (*a*) Examination of Board of Health records of children needing medical, dental or ocular care and better nourishment. (*b*) Home visitation of such children, in order to ascertain whether their need arises from deficient income or from other causes. (*c*) Effort to secure proper treatment, either from parents or from free clinics, or other established agencies. (*d*) Effort to secure proper physical surroundings of children while at school — playgrounds, baths, etc.

(2) Effort to secure the establishment of such a system of school reports and records as will automatically disclose school facts: *e. g.*, regarding backward pupils, truancy, regularity of attendance, registry of children not attending — sickness, physical defects, etc.

(3) Effort to utilize available information regarding school needs, so as to stimulate public interest, and thus aid in securing adequate appropriations to meet such needs.

There is no doubt that such efforts toward bettering the condition of school children through a study of their defects and social conditions will be not only beneficial to the entire school system, but will also ultimately be a saving to the city through the avoidance of disease and viciousness which might otherwise later become a social burden. Naturally the demand for such precautions is greater in our large cities than among the more rural population. Nevertheless, similar efforts should be made in the smaller schools where, no doubt, as in the larger cities, many children will be found suffering from remediable defects. The Massachusetts law is inclusive in this respect of every public school in the state, and in this has been most wisely drawn.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, July 4, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 12, typhoid fever 6, measles 26, tuberculosis 37, smallpox 0.

The death-rate of the reported deaths for the week ending July 4, 1906, was 16.91.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 30, 1906, was 173, against 181 the corresponding week of last year, showing a decrease of 8 deaths and making the death-rate for the week 15.16. Of this number 86 were males and 87 were females; 169 were white and 4 colored; 93 were born in the United States, 75 in foreign countries and 5 unknown; 31 were of American parentage, 124 of foreign parentage and 18 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 49 cases and 1 death; scarlatina, 30 cases and 2 deaths; typhoid fever, 12 cases and 1 death; measles, 32 cases and no deaths; tuberculosis, 37 cases and 18 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 9, whooping cough 2, heart disease 33, bronchitis 1 and marasmus 5. There were 15 deaths from violent causes. The number of children who died under one year was 28; the number under five years 38. The number of persons who died over sixty years of age was 37. The deaths in public institutions were 72.

There were 2 cases and no deaths reported from cerebrospinal meningitis during the week.

Bequests. — By the will of the late Mrs. Julia B. Thayer, of Keene, N. H., $325,000 is left in public bequests. Among these bequests are the following: Worcester City Hospital, $20,000; New England Hospital for Women and Children, Boston, $10,000; Trustees of Nurses' Home, Worcester, $10,000; Invalids' Home, Keene, N. H., $10,000.

Boston Floating Hospital. — The work of the Boston Floating Hospital will be facilitated this year by the use of a dock at the North End Park. Hitherto much inconvenience has resulted from the fact that the boat had no exclusive dock on the Boston side of the harbor. The use of the new dock is due to the interest of the trustees of the Public Bath Department.

A Proposed Boulevard for the Harvard Medical School. — On Commencement Day, President Eliot, of Harvard University, alluded to a proposed new boulevard which should form a fitting approach to the new Harvard Medical School buildings. It was later announced that a gift of $60,000 had been received from an anonymous source for the construction of this boulevard. Mayor Fitzgerald, of Boston, pledged the support of the city for the furtherance of the plan. This action on the Mayor's part has met with the criticism of the Board of Street Commissioners which maintains that the Mayor's promises were unwarranted, and it is questionable whether such a street can be built in the immediate future with the funds at the city's disposal. The need of such a boulevard is self-evident and it is to be hoped that the means may be found to carry the plan to a successful conclusion.

NEW YORK.

Smallpox. — President Darlington, of the Health Department, having received word from the secretary of the State Health Department that over forty cases of smallpox of a mild type had recently occurred at Catskill-on-the-Hudson, has urged that all persons who intend going into that region for their summer vacations should be vaccinated.

Panic among the Hebrew Population. — A curious riot and panic recently occurred among the excitable Hebrew population of the lower East Side, who mobbed a number of the public schools in that section, in consequence of wild reports that their children were being murdered in the schools. The trouble originated in the fact that the Health Department physicians operated on several of the pupils for the removal of adenoids, although in every instance the consent of the parents for the procedure had been obtained. A number of women having children in the schools told the teachers that a strange man had come to their flats, and urged them to run to the rescue of their children.

Relief for Indigent Patients. — The Association for Improving the Condition of the Poor has recently sent out a notice to four thousand physicians in the city, proffering its aid, on the physician's furnishing the name and address, with a simple diagnosis and statement of need, in the case of any indigent patient requiring a fresh-air outing, special institutional care, extra nourishment, or other material relief.

Hospital for Bronxville. — At a meeting of the board of trustees of Bronxville, a village in Westchester County, just beyond the New York City limits, held on June 28, it was announced that W. V. Lawrence, of that place, who recently made the gift of a $60,000 town hall, had offered to present to the village a hospital, which, with the land and equipment, would cost $1,000,000; and the offer was at once accepted by the trustees. Mr. Lawrence a short time since purchased two and a half acres fronting on Palmer Avenue, and upon this property the hospital will be erected.

Free Public Bath. — On June 28 the Commissioner of Public Works formally opened a very fine permanent free public bath in West 60th Street, the seventh of its kind in the city. The special feature of this new bathing establishment is a great plunge and swimming bath, having a depth varying from 4 to 7 feet, with a capacity of about 230,000 gallons, and so arranged that the water can be constantly changed. Women and girls are to have the exclusive use of the plunge bath on three days of the week, and on the second floor are shower baths for the daily use of both sexes. The building, which is a handsome one exteriorly, and in the equipment of which no pains have been spared for the comfort and convenience of the bathers, was erected at a cost of $175,000.

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Obituary.

MANUEL GARCIA.

Although not a physician, the late Señor Manuel Garcia is worthy the cordial recognition of the entire medical profession through his generally accepted invention of the laryngoscope. He died July 1, in London, in his one hundred and second year, having been born in Madrid, the 17th of March, 1805. He early began his education in music and learned much of the art of singing from his father of the same name, who was formerly a well known singer. In 1825, father and son made a visit to this country. In 1829, Manuel Garcia, the younger, returned to Paris and took up the work of teaching, together with scientific inquiries into the anatomy of the vocal organs and the physical mechanism of singing. From this work resulted the laryngoscope, which has made possible detailed study of diseases of the throat. In 1840, he presented before the French Institute a memoir on the human voice. He later became professor of singing at the Paris Conservatory, and in 1850, he went to London and accepted a professorship at the Royal Academy of Music.

It is a matter of no small interest that two instruments of precision, which have made possible the development of two special branches of medicine, were worked out by men only secondarily interested in medicine. Helmholtz discovered the principle of the ophthalmoscope in the course of his investigation of the physics of light, and Manuel Garcia, to whom no doubt will be given final credit for the discovery of the laryngoscope, was working in quite a different field than medicine when he discovered the significance underlying the principle of this invaluable instrument. Last year the centenary of Manuel Garcia's birth was appropriately celebrated in England.

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Miscellany.

HARVARD MEDICAL ALUMNI ASSOCIATION.

The fifteenth annual meeting of the association was held at the old Harvard Medical School, on Tuesday, June 20, 1906. About one hundred members were present.

The minutes of the previous meeting and the reports of the secretary and treasurer were read and accepted. Officers were elected as follows:

For president, Alfred Worcester, M.D. 1883, of Waltham, Mass. For vice-presidents: Frederick W. Borden, M.D. 1868, of Ottawa, Ontario; Edward F. Cushing, M.D. 1888, of Cleveland, Ohio; Richard C. Cabot, M.D. 1892, of Boston, Mass.; John M. T. Finney, M.D. 1889, of Baltimore, Md.; Isadore N. Bloom, M.D. 1881, of Louisville, Ky.; Thomas F. Harrington, M.D. 1888, of Lowell, Mass.; Josiah N. Hall, M.D. 1882, of Denver, Colo.; Erasmus D. Leavitt, M.D. 1870, of Butte City, Mont.; George B. Shattuck, M.D. 1869, of Boston, Mass.; Edmund H. Stevens, M.D. 1867, of Cambridge, Mass. For secretary, David Cheever, M.D. 1901, of Boston, Mass. For treasurer, William H. Prescott, M.D. 1888, of Boston, Mass.

For councillors, to serve to the end of June, 1910:

George Emerson Brewer, A.B. 1881 (Hamilton), M.D. 1885, of New York City; Surgical Interne, Boston City Hospital; Professor of Clinical Surgery, College of Physicians and Surgeons, of New York; Surgeon to Roosevelt Hospital; Attending Surgeon to City Hospital.

Charles Follen Folsom, A.B. 1862, A.M., M.D. 1870, of Boston, Mass.; Late Visiting Physician to Boston City Hospital; Overseer of Harvard College, 1891–1903.

Frank Burr Mallory, A.B. 1886, A.M., M.D. 1890, of Boston, Mass.; Associate Professor of Pathology, Harvard Medical School; First Assistant Visiting Pathologist, Boston City Hospital; Pathologist to Children's Hospital.

Dr. Frank B. Mallory reported for the Committee on the Medical School, and in speaking of the future emphasized the necessity of control by the school of opportunities for clinical work, in order that the school can call clinical teachers from other medical centers, if desirable, in the same way that teachers in laboratory branches can be secured.

Dr. Malcolm Storer reported for a committee of the council of the association outlining a plan for raising money among the alumni to pay in whole, or in part, the salaries of certain of the younger instructors, with a view to increasing the efficiency of instruction in certain departments.

At the instance of Dr. A. N. Blodgett the following resolutions were unanimously passed:

"Since our last annual meeting this association has lost one of its best friends and most active promoters, Dr. James Read Chadwick. Dr. Chadwick was one of the chief movers in the preliminary organization of which this association was formed, and he was its first president. He was always deeply interested in its welfare, and contributed greatly to its progress and success; and was always helpful in the important professional functions which the association has fulfilled.

"To his energy we owe the lively participation which the association has taken in the instruction of the students in the medical departments of Harvard University, and the free but always friendly criticism of its methods and practice and the sympathetic and encouraging suggestions received from the experience of teachers in important departments of similar university schools, which have often obtained the distinguished approbation of our University faculty, and have to some extent been adopted.

"Through the untiring zeal of Dr. Chadwick this association was enabled to offer several courses of important lectures to medical men upon subjects of great value, which were delivered by such men as John S. Billings, William Osler, David Hunt and others.

"Among the various benevolent and uplifting objects in which Dr. Chadwick took an especial interest, perhaps none, except the great medical library which he founded and lived to see firmly established in adequate and permanent form, was dearer to his sympathies and heart than this association. It seems, therefore, appropriate that some action should be taken by us at this meeting upon the loss of so able, distinguished and devoted a member of our body, who has always been helpful to its prosperity, amiable in all his relations to it, almost aggressive in his efforts for its advancement, and untiring in his exertions in its welfare; therefore, be it

"*Resolved*, That this association desires to put on record its sense of a great loss in one, whose activity, faithful work and deep interest, has, more than any other man, organized and perpetuated its existence and carried to a successful termination its objects."

PRACTICAL PHILANTHROPY.

Under the caption "Practical Philanthropy in the Legislature of 1906," our contemporary, the Boston *Evening Transcript*, makes the following pertinent remarks:

"Perhaps the most important of all [the laws] has been the law requiring cities and towns to require every child in the public schools who seems ill to be attended by a doctor, and to have the sight and hearing of all children in the schools tested by the teachers annually. Twenty-five per cent of school children, experts say, need glasses to do their school work, and of this 25% a very small proportion is known to be in such need by the teachers, the parents or the children themselves, with the result that to hundreds of children the school work is largely a meaningless jumble of incomprehensible conundrums. By this bill alone a very large source of truancy, and consequent evil courses and lawbreaking, will be cut off.

"And finally, suppose the child's inheritance is such that no schooling and no environment could ever have made him a moral or a successful man? A certain $50,000 has been appropriated — very unostentatiously — that will do something toward helping the situation even at this most desperate end. It will go to buy land for a new school for the feeble-minded, which will in time draw off from the body politic the disease that consists in hundreds of feeble-minded girls and women now contributing their full quota to the degradation and misery of generations yet to come.

"The state should also establish more sanatoriums for consumptives. The ultra 'practical' man always opposes such measures as this upon the ground of what he facetiously terms 'economy.' It is economical, apparently, to allow people to spread disease and to die, to strike down the breadwinner in a dozen families, rather than go to the expense of keeping one such person alive and enabling him to return to productive work. In Germany, where, through their system of compulsory disability insurance, such losses are brought together and paid for by a definite set of individuals out of their profits and their earnings, the triumphant arithmetic of the 'practical' economist has ceased to convince. The manufacturers and workingmen who have to pay when the workingmen are sick have attacked this tuberculosis business on a basis of dollars and cents, and have started sanatoriums because of what there is in it for the man that stands the loss. Some day we, too, shall learn that here, and in a hundred other matters that will still remain behind when another good year of legislation has been secured, the ounce of prevention is not an uneconomical investment. Meantime, congratulations to the legislature of 1906 for the long distance it has brought us along the best of all possible roads."

Correspondence.

AN APPRECIATION.

June 25, 1906.

Mr. Editor: It may be a little tardy, but as one of the many visitors who recently enjoyed so thoroughly the hospitality of your city and its medical profession, I trust I will be pardoned if I write a few words to express, not only for myself, but, I am sure, for every medical man who attended the American Medical Association, the appreciation which was felt for the courtesy and warm-hearted hospitality with which we were met, and the delightful opportunities of medical culture which were offered to us. As a Virginian I had been told by fellow-statesmen of mine that in Boston I would feel as in few other places that hospitality and cordiality which we ourselves have been apt to boast of, but I was not prepared to find it so complete and so spontaneous as it was. It is to be wished in these days of great wealth that all towns which possess much of this world's goods could justify their possession of it as amply as Boston, by using that wealth so worthily for education and for sociologic betterment, and I believe that not a few of your visitors left your hospitable walls acknowledging that you give to our country the best example of the worthy use of great wealth.

Trusting that the civic and medical advance of which Boston has given us medical men such admirable examples may find imitation all over our land, I am,

Yours truly,

Medical Visitor.

DIAGNOSIS OF SUBDELTOID BURSITIS.

New York, July 4, 1906.

Mr. Editor: If you are willing to allow a few lines — the last I shall ask — in reply to Dr. Codman's letter in your issue for June 28, I would say that I accept as accurate his correction, namely, that my sign which I termed *pathognomonic* of this bursitis is only *when present* pathognomonic. We, however, differ as to the question of its frequency. I, of course, admit that there are cases where the arm cannot be lifted, even passively as this test requires, to a right angle with the body, but I certainly do not agree that such ugly cases of subdeltoid bursitis, either alone or accompanying other local troubles, constitute a majority. Far from it.

And when we abduct the passive arm until its humeral greater tuberosity is beneath the acromion, the tenderness due to the bursitis in question can no longer be elicited, because in that posture the bursa is protected from pressure, which constitutes the differential sign under discussion.

Very truly yours,

Robert H. M. Dawbarn, M.D.

RECORD OF MORTALITY

For the Week ending Saturday, June 23, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,228	406	Quincy	6	1
Chicago	423	93	Waltham	11	3
Philadelphia	429	133	Gloucester	3	2
St. Louis	—	—	Pittsfield	5	2
Baltimore	166	58	Brookline	5	1
Cleveland	—	—	North Adams	7	1
Buffalo	—	—	Chicopee	2	1
Pittsburg	—	—	Northampton	6	0
Cincinnati	—	—	Medford	2	1
Milwaukee	—	—	Beverly	2	—
Washington	—	—	Hyde Park	4	4
Providence	53	17	Newburyport	5	—
Boston	158	36	Leominster	1	—
Worcester	45	15	Melrose	1	0
Fall River	35	16	Woburn	3	1
Cambridge	23	10	Marlborough	5	2
Lowell	30	11	Westfield	1	-
Lynn	17	3	Peabody	—	—
New Bedford	18	7	Revere	2	1
Springfield	18	4	Clinton	1	0
Lawrence	18	4	Attleboro	0	
Somerville	13	3	Adams	1	1
Holyoke	17	8	Gardner	—	—
Brockton	8	1	Milford	—	—
Malden	8	—	Weymouth	—	—
Salem	9	4	Framingham	2	—
Chelsea	11	2	Watertown	1	—
Haverhill	6	—	Plymouth		—
Newton	5	0	Southbridge	1	—
Fitchburg	4	—	Wakefield	4	—
Taunton	17	4	Webster	—	—
Everett	8	1			

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE

A board of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B Street, S. E., Washington, D.C., Monday, Aug. 6, 1906, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: 1, Physical. 2, Oral. 3, Written. 4, Clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene. The oral examination includes subjects of preliminary education, history, literature and natural sciences. The clinical examination is conducted at a hospital, and, when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After five years' service, assistant surgeons are entitled to examination for promotion to the grade of past assistant surgeon. Promotion to the grade of surgeon is made according to seniority, and after due examination, as vacancies occur in that grade. Assistant surgeons receive sixteen hundred dollars; passed assistant surgeons, two thousand dollars, and surgeons, twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty and fifty dollars a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address

The Surgeon-General,
Public Health and Marine Hospital Service,
Washington, D. C.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 30, 1906.

(Orders issued by Commander-in-Chief of Asiatic Fleet.)

F. S. Nash, surgeon. Detached from the "Monadnock" and ordered to the Naval Station, Olongapo, P. I.

H. O. Shiffert, passed assistant surgeon. Detached from the Naval Hospital, Philadelphia, Pa., and ordered to duty with the marine detachment on the "Isthmus of Panama," sailing from New York, N. Y., July 3.

C. F. Ely, assistant surgeon. Detached from duty with the marine detachment on the "Isthmus of Panama" and ordered home to wait orders.

J. S. Woodward, assistant surgeon. Detached from special duty in the Bureau of Equipment, Navy Department, and ordered home to wait orders.

G. Pickrell, surgeon. Detached from the "Franklin" and granted sick leave for three months.

A. J. Geiger, assistant surgeon. Ordered to the "Brooklyn."

APPOINTMENTS.

The following instructors have been appointed to the faculty of the Harvard Medical School: Dr. C. L. Alsberg, chemistry; Drs. J. B. Blake, H. A. Lothrop, J. G. Mumford and C. A. Porter, surgery; Drs. R. C. Cabot, E. G. Cutler, Henry Jackson, H. F. Vickery and E. P. Joslin, medicine; Dr. J. H. Wright, pathology, and Dr. E. W. Taylor, neurology.

Dr. Edgar Garceau has been appointed consulting gynecological surgeon to St. Anne's Hospital, Fall River, Mass.

RECENT DEATHS.

Dr. Herbert James Liddle, of New York, died on June 25, at the age of thirty-two years. He was born in Brooklyn, N. Y., and was graduated from the Long Island College Hospital in 1896. He devoted himself more particularly to dermatological and genito-urinary work, and at the time of his death was on the teaching staff of the New York Polyclinic.

Dr. Henry Remsen Tilton, a U. S. army surgeon, retired with the rank of colonel, died at Madison Barracks, Sacketts Harbor, N. Y., on June 25, in the seventy-first year of his age. He was buried on June 27, in the National Cemetery at Arlington, Va.

BOOKS AND PAMPHLETS RECEIVED.

Letters from a Surgeon of the Civil War. Compiled by Martha Derby Perry. Illustrated. Boston: Little, Brown & Co. 1906.

Transactions of the Obstetrical Society of London. Vol. xlviii. For the year 1906.

The Sixteenth Annual Report of the Eye, Ear, Nose and Throat Hospital of New Orleans, La. Jan. 1, 1905, to Dec. 31, 1905.

A Case of Huntingdon's Chorea. By Harry W. Miller, M.B. (Tor.) Reprint.

Medical Guides and Monographs Series. Golden Rules of Surgery. Aphorisms, Observations and Reflections on the Science and Art of Surgery. Being a Guide for Surgeons and those who would become Surgeons. By Augustus Charles Bernays, A.M., M.D. (Hdlbg.), M.R.C.S. (Eng.) St. Louis: The C. V. Mosby Medical Book Co. 1906.

A Lecture on the Dystrophy of Tabes and the Problem of Trophic Nerves. By Sir William R. Gowers, M.D., F.R.S. Reprint.

Second Annual Report of the Henry Phipps Institute. For the Study, Treatment, and Prevention of Tuberculosis. February 1, 1904, to February 1, 1905. Philadelphia. 1906.

Surgical Suggestions, Practical Brevities in Diagnosis and Treatment. By Walter M. Brickner, M.D., and Eli Moschcowitz, M.D. New York: Surgery Publishing Co. 1906.

Original Articles.

THERAPEUTIC EFFECT OF SOUND WAVES, OR MECHANO-THERAPEUTICS OF THE EAR.*

BY CLARENCE JOHN BLAKE, M.D., BOSTON.

That the application to the organ of hearing of that mode of motion which it is especially constructed to transmit and to perceive comes, justifiably, under the head of mechano-therapeutics and that this claim is demonstrably determinable, in the sound transmitting apparatus, and inferentially determinable, in the perceptive organ, it is the purpose of this paper to present.

Furthermore, it is desirable to draw a contrast between the grosser modes of motion, of frequent clinical use, and the lesser degrees of motion, obtainable through the medium of sound waves, which are more apportionate to the delicacy of the sound transmitting apparatus.

The therapeutic application of sound waves, for the purpose of effecting a betterment in the condition of some portion of the ear, is, in fact, merely a form of massage of acoustic origin and transmission and, like all other forms of massage, needs to be adapted in force and in form, upon the basis of normal structure, to the abnormal condition of the part of the body with which it is concerned.

The special utilization of sound waves, as motive power, or as stimulus, adjuvant to other treatment, is called for in two groups of abnormal conditions coming frequently under the observation of the otologist; the first group includes such conditions as present a greater or less degree of immobility of the sound transmitting apparatus, or an imperfection of sonorous transmission, through relaxation of some part of the acoustic balance, the second group includes such conditions as decrease the power of perception; any individual case may present one of these classifications independently; sometimes they exist coincidently and, not infrequently, where they do so co-exist, the second is a consequence of the first.

Regarding the sound transmitting apparatus of the middle ear as an acoustic balance responsive to a wide range of sound waves, from 60 to 45,000 in a second, capable of adjustment to movements measurable in thousandths of a millimeter, and dependent, for its extreme of equilibrium, upon an equal, or nearly equal, degree of atmospheric pressure upon both sides of its balance arm, the drum-head, it is evident that any change in equilibrium of the intact apparatus, whether from altered atmospheric pressure, or from contraction of its intrinsic muscles, must impair the responsive movement to sound waves and, where these waves are excessively compound, with a variety of qualitative overtones, as in the human voice, present a distorted acoustic scheme to the perceptive apparatus. In the minor degrees of change of tension and decrease of mobility of the sound transmitting apparatus, this distortion of the sound scheme is, frequently, inappreciable, because of the compensatory adjustment provided for by the action of the intrinsic muscles of the middle ear but, in the greater degrees of tension anomaly, or of fixation, it becomes an important consideration. A familiar, and illustrative clinical picture is that in which repeated closures of the tympano-pharyngeal tube have resulted in a secondary contraction of the tensor tympani muscle with first, an increase and, later, a decrease in the hearing for tones of high pitch and for qualitative overtones, the fixation of the sound transmitting apparatus, under undue muscular tension, causing it to present a veritable barrier to the passage of short sound waves. The application of major force, either by too vigorous inflation of the middle ear or too forcible exhaustion of air in the external auditory canal, operating upon the drum-head with a view to release of the grasp of the muscle, tends rather to stretch that resilient and, comparatively, inelastic membrane, than to overcome the muscular contraction, the membrane gives at its point of least resistance and there is an addition to the clinical picture in a relaxation of the posterior superior segment of the drum-head. In view of the fact that a secondary muscular contraction is best overcome by prolonged and gentle traction in the opposite direction, the desired release may be best effected, through utilization of absorption of air by the skin, by stopping the external auditory canal by means of a cotton and waxen plug, after the method of Politzer, the plug being inserted at night and removed in the daytime; the absorption of air by the skin lining the canal, between the plug and the drum-head, making a partial vacuum, with resultant preponderating atmospheric pressure, through the tympano-pharyngeal tube, upon the inner surface of the drum-head, and consequent gentle, prolonged counter pressure to the pull of the tensor tympani muscle. The experienced effectiveness of this measure, in the earlier stages of tensor tympani contraction, and the lack of injurious effect upon the proper tension of the drum-head commend it to a larger use than it has generally attained, in contrast to the more forcible measures of sudden change of atmospheric pressure which, by succussion of the drum-head, tend rather to stretch that membrane than to overcome the contraction of the muscle.

If the posterior superior segment of the drum-head has already become relaxed, at the time when the case comes under observation, this stretched portion may, advisedly, be reinforced by the application of simple, or contractile, collodion, before the plugging process is resorted to, and, in all cases, it is well to supplement the grosser mechanical treatment by the motive application of sound waves.

This may be done by means of various sound sources, but most conveniently by means of the human voice concentrated upon the ear through the medium of a speaking tube, a convenient instrument being the ordinary paper mailing tube, 2 in. in diameter, a foot or more in length, its lumen partially closed, midway of its length, by a ball of loosely rolled wool which serves to decrease the resonance of the tube in its reinforcement of the sharp, upper partials of the voice. A tube of this sort, with one end applied directly to the ear, and the other end nearly closed by the mouth of the speaker, who should speak, preferably, in a moderate tone, suffices, in the great majority of cases, as the medium for the application of the sound waves of the voice, and is preferable to sound producing devices which are either restricted in their range or which, in the mechanical reproduction of speech, elide some and accentuate other of the qualitative overtones.

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* Read before the American Therapeutic Society, May 4, 1906.

In the higher grades of fixation of the sound transmitting apparatus, of which the clinical picture above represented is merely an inception, and to which the grosser modes of motion for mobilization are more distinctly applicable, the therapeusis of the sound wave still plays an important part. With an extreme degree of distortion of the ossicular chain, with possible trophic changes in the articulations of the ossicles and with an obstructive thickening of the lining membrane of the tympanic cavity, it would seem that sounds of a considerable volume, capable of inducing extensive excursions of the immobile parts, might be employed, but here it is to be remembered that the ultimate destination of the truly sonorous vibration is the labyrinth, that major movements for mobilization of the extremely fixed middle ear sound transmitting apparatus had best be confined to nonsonorous motion, and that the use of the motive power of the sound waves should always be moderate and regarded mainly as supplementary treatment.

The reactive effect, upon the tissues of the middle ear, of prolonged subjection of the labyrinth to sound waves of considerable amplitude and comparatively high pitch, is abundantly shown in the cases of, so-called, boiler maker's deafness, where the thickened and retracted drumhead, the difficulty of understanding conversation, because of the obstruction presented to the passage of the sharp sound waves of the qualitative overtones, and the better hearing, for the voice, in the presence of a loud and normally disturbing sound, all point to a gradually effected sequence in nature's effort to safeguard a deeper seated and more vulnerable part. Experimental investigation has shown the process by which this reactive change proceeds; in a series of selected cases of normal hearing, with transparent drumheads, the subjection of the ear to sustained tones, of moderately high pitch, resulted in a slight congestion in the region of the oval window, extending gradually upon the upper portion of the promontory, and supplemented, finally, in some cases, by slight injection of the manubrial plexus. On cessation of the sound the injection of the vessels of the tympanic mucosa, and of the manubrial plexus, slowly faded; but, while it pertained, there was an impairment of hearing for qualitative overtones, as tested by the differentiation in hearing of tuning forks and of the consonant checks.

For the higher grades of fixation of the sound transmitting apparatus, where the voice is to be used as a sound source therapeutically, there is an elemental characteristic of speech to be considered, namely, the projective force of the consonant checks. In a series of investigations upon the force value of speech, precedent to the investigations on sound transmission which led up to the telephone and first published in the Transactions of the British Society of Telegraph Engineers in 1878, it was found that certain consonant sounds had a higher logographic, or force, value than others, and that still other consonant sounds had a distinctive propulsive effect, *k* and *t* being examples of the former, and *p* of the latter, and it has been demonstrated, clinically, in cases of immobility of the sound transmitting apparatus so extreme as to render distinction of the parts of speech in a continuous sentence almost impossible, that the daily use of the voice, through the medium of a paper tube, beginning with monosyllabic words compounded of consonant sounds of high logographic value has led, gradually, to the perception of the softer consonant sounds and, finally, to that of the continuous sentence.

The amelioration of condition in some cases of chronic nonsuppurative disease of the middle ear with extreme impairment of hearing, especially in old people, not amenable to surgical relief, effectible by this simple treatment coupled with Politzer plugging and the auto-massage of Hommell, while inconsiderable, as compared with restoration of a normal degree of hearing power, is considerable when regarded as a percentage of the hearing which the patient has come to possess, and is, moreover, valuable in that even a moderate utilization of the sound transmitting apparatus seems to impart a sense of vitality and afford a stimulating mental effect.

In cases of monaural impairment of hearing, where the loss of hearing has been gradual, as in the progressive nonsuppurative diseases of the middle ear, and the unimpaired ear has gradually come to be more and more relied upon as the single organ of hearing, there comes about, in the affected ear, an additional loss, from desuetude, and a correspondingly increased fixation of the sound transmitting mechanism.

Under these circumstances, even when other treatment is inadvisable, the daily use of an ear trumpet or of the paper tube and the subjection of the ear to the impulse of the sound waves of the voice for moderate periods is valuable for the sake of preventing, not only the further fixation of the transmitting mechanism, but also that later stage of disability in which the sound transmitting mechanism of the labyrinth shares in the consequences of disuse.

These consequences, entailing the loss of perception of sound by bone conduction, are often productive, especially in adults, of uncomfortable sensations, incident to absolutely monaural audition, sometimes to the extent of decreasing the ability for prolonged or sustained intellectual effort.

In cases of, so-called, deaf-mutism, where there is a remnant of sound perception, the sound waves of the voice may be directly applied, both for the beneficial results to be attained from their motive power and for their educative purpose, the experiments of Urbantschitsch and others, as well as the training inaugurated in some of the schools for deaf-mutes in this country, having demonstrated the fact that, where hearing has been lost after inauguration of the speech habit, the use of the voice as a therapeutic agent has had a re-educative effect tending to a better appreciation of vocal utterance and a corresponding betterment of vocal articulation.

In this connection it may not be inappropriate to direct attention to the differentiation of the pupils relegated to schools for the deaf for the compensatory education which their condition apparently demands. This differentiation, to be properly effective, can be accomplished only by competent medical examination coupled with the use of uniform hearing tests and the results thus far attained, when such a system of medical inspection has been employed and remedial measures instituted may be, conservatively, stated as the restoration of 7% of the supposed deaf-mute pupils to hearing schools and an improvement in sound perception in a further 8% to the extent of a considerable improvement in the modulation of the voice.

Of the 7% above mentioned the majority were operable cases, while in the corresponding 8% the amelioration of condition was the result of the therapeutic application of sound waves, preferably of the voice repeatedly used, as a part of the school curriculum, the naturally modulated voice, applied through a tube, being found preferable to its distorted reproduction by mechanical means or its reinforcement by resonators, after the method of Natier.

Where artificial sound sources are employed they should approach, as nearly as possible, the range and the volume of the human voice; excessively loud sounds, whatever their beneficial motive effect upon the sound transmitting apparatus may be, find their ultimate expenditure of energy in the labyrinth and the perceptive organ, and what may be gained in one respect may be lost in another.

In tension anomalies of the sound transmitting apparatus certain tones are sometimes transmitted with undue vigor, and where this is the case, as is easily determined by the sensations of discomfort which they induce, their use should be avoided.

The more modern forms of voice reproducing instruments, the gramophone with its waxen cylinder and the magnetophone with its coil of magnetized wire, are less open to the objection of accentuation of voice overtones than the earlier phonograph, but even these are open to objections, for purposes of phonomassage, which do not pertain with the properly modulated, natural voice.

But it is in the cases of disruption of the sound transmitting apparatus, either by accident or as the consequence of suppurative disease of the middle ear, that the most interesting and speedily demonstrable instances of the therapeutic effect of sound waves occur. The restoration to its former tension of a stretched portion of the membrana tympani by the application of a paper splint which imparts to the relaxed tissue the movement of the sound waves impinging upon the rigid surface of the paper, the corresponding improvement effected by a similar application extending from the inner end of the external auditory canal over the posterior superior segment of the drum-head, the restoration of the facetal contact of a relaxed malleo-incudal articulation in which a supporting splint of paper or of thin rubber tissue has been the primal, and the massage effect of the sound waves, the secondary factor, and the evident mobilization of the stapes, with protracted improvement in hearing, after removal of the sound receptive paper disk, which had remained, for several weeks, attached to the descending process of the incus, or to the free head of the stapes, are illustrations, clinically observable, of the therapeutic effects of the motive power of sound waves when applied to the restoration of function of one of the most delicate of the special mechanical equipments of the human machine.

The therapeutic value of massage, either manual or instrumental, by means of a Zander apparatus, for instance, depends largely upon the judicious application of its force, both in degree and in duration, to the particular need which it has to serve and the care which is ordinarily exercised among orthopedists, in their prescriptions in this respect, is due to an acquired knowledge of the capacity for safe resistance to stress and strain in the mechanisms with which they have to deal. In the delicate mechanism of the ear the margin for safe application of extra force is small because the whole excursion of the acoustic balance is so minute, and the perceptive apparatus so easily subjected to fatigue, by the prolonged application to it of a continuous tone. In the sound transmitting apparatus, for instance, the stapes, at the inner end of the ossicular chain, makes an excursion normally of one one-thousandth of a millimeter, in response to a tone of 1,200 vibrations in the second; with the drum-head and the two major ossicles removed, and the stapes exposed in its niche, there is presented to the action of sound waves only the area of the base plate, and basilar membrane, of the stapes, plus the minute surfaces of the reduplications of mucous membrane extending, in about 35% of all normal middle ears, from the niche walls on to the stapes.

Under these conditions the stapes, deprived of a large percentage of the customary normal massage effect of the sound wave impulses, and still further inhibited by the uncounteracted pull of the stapedius muscle, becomes, gradually, more and more the subject of fixation. In several instances of this kind, and in others where suppurative middle ear disease had resulted in spontaneous evulsion of the incus and a permanent opening in the drum-head, exposing the stapes to view, division of the stapedius tendon, leaving the stapes to move freely, as a plunger, in its niche and the application, to the head of the stapes, with a supporting bearing upon the edge of the perforation in the drum-head, or upon the promontory, of a disk of stiff, sized paper, presenting to the sound waves a receptive surface of from four to ten or more times the superficial area of the base plate of the stapes, has effected a gradual mobilization evidenced by a progressive improvement in the hearing; in some of the cases thus studied it was necessary, in the earlier stages of the experiment, to resort to the direct application of the sound waves, but, in the majority of the selected cases, the sound waves of ordinary causation sufficed.

With a due appreciation of the proper apportionment of the motive force to be applied, and with a proper estimation of the injurious effects upon the perceptive organ of continuous loud sounds, coupled with a study of the accumulating records of various observers, it will be possible to release this subject from the bonds of clinical empiricism and place it upon its true basis as a therapeutic measure.

This much may be at least taken for granted, that the application of the major force exertable by the majority of aural massage instruments is objectionable and that such instruments should be used only under careful observation of their immediate effects, that phonomassage, of mechanical production, where abounding in metallic overtones, is objectionable because of its fatigue effect, and that the use of sound waves judiciously applied, with a sufficient knowledge of the existing aural condition, is a valuable supplement to the mechano-therapeutics of the ear.

In conclusion it may be said that application of sound waves to the ear for therapeutic purposes is the application of a form of massage commensurably proportionate to the delicacy of the sound transmitting structures of the middle ear and labyrinth.

That the prolonged use of tones of excessive amplitude and very low or very high pitch, whatever their beneficial mobilizing effect upon the sound transmitting apparatus of the middle ear may be, are open to the objection of their prejudicial effect upon the organ of perception.

That mechanical reproductions of speech are open to the objection of their accentuation of overtones and their presentation of a distortion of a familiar sound picture, that of the normal voice.

That the natural voice concentrated upon the ear is, both in its range and its volume, as well as in the more general exercise afforded by its complexly compounded sound waves and the readiness with which it may be uniformly applied, the safest and, in the end, the best form of sound source for phonomassage of the ear.

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Cholera.— It is reported that cholera has appeared at Manila, but no anxiety is entertained.

A METHOD FOR THE DIFFERENTIAL STAINING OF BLOOD PLATES.

BY JAMES HOMER WRIGHT, M.D., S.D.,

Director of the Pathological Laboratory of the Massachusetts General Hospital; Instructor in Pathology, Harvard Medical School.

In a recent paper upon "The Origin and Nature of the Blood Plates," published in this Journal,[1] I described the results obtained by means of a special staining method for these corpuscles, but I did not describe the method in detail.

I have recently improved it in some particulars and it may be now described as follows:

Fixation of perfectly fresh tissue in methyl alcohol; dehydration by acetone; clearing by xylol; imbedding in paraffin. Sections of 2 μ thickness, for thicker sections do not give the best staining reactions.

Staining. — The sections are stained while affixed to a coverglass by Wright's blood staining fluid[2] in the same manner as a blood smear.

1. A sufficient quantity of this staining fluid is placed on the coverglass to cover it and then an equal quantity of water is added to the staining fluid drop by drop. The mixture remains on the preparation ten minutes.
2. Rinse in water.
3. Immerse in a 1 to 5000 aqueous solution of sodium hydrate for five seconds.
4. Wash in water.
5. Dehydrate with acetone.
6. Clear with oil of turpentine.
7. Mount in turpentine colophonium.

A most important feature of the method is the use of acetone and oil of turpentine in dehydrating, clearing and mounting, for these do not destroy the characteristic staining as do other similar reagents that I have experimented with.

The spleen of a young kitten is the most favorable object for the demonstration of the characteristic staining and structure of the blood plates and their origin from the giant cells as described in my paper referred to above, because this organ in this kind of animal contains many giant cells and also very many blood plates which are especially large in the cat.

Because the blood plates by this method exhibit peculiarities of staining and structure which permit them to be definitely recognized as blood plates and to be clearly distinguished from all other histological elements, I have been able to show that the so-called granular material seen in sections of mixed thrombi in man consists exclusively of blood plates and their fragments without any admixture whatever of fragments of red blood corpuscles.

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THE OCCURRENCE OF OCCULT HEMORRHAGES IN TYPHOID FEVER.*

BY WILDER TILESTON, M.D.

In view of the recent advances in the detection of small traces of blood in the feces, it has seemed worth while to examine the stools in typhoid fever, in order to determine the frequency with which "occult hemorrhages" occur; *i. e.*, those not evident to the naked eye. I have, accordingly, during the fall of 1905 and the following winter, examined the stools in 68 cases of typhoid by means of the guaiac and aloin tests for blood pigment.

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[1] Boston Medical and Surgical Journal, June 7, 1906.

[2] Journ. Med. Research, vii, 138, January, 1902.

* From the Clinico-Pathological Laboratories of the Massachusetts General and Boston City Hospitals, Drs. J. H. Wright, F. B. Mallory, directors.

The technique employed was essentially that of Boas.[1] About 5 cc. of liquid feces are taken, or, if the stool is solid, a piece the size of the end of the thumb is mixed with enough water to render it semi-fluid. The fat is first extracted with 20 cc. ether. To the residue is then added one third to one half its volume of glacial acetic acid, the two are thoroughly mixed and allowed to stand five minutes.

The next step is extraction with 8 to 10 cc. ether for fifteen minutes. The ethereal extract is divided into two equal portions, one for the guaiac, the other for the aloin test. The guaiac test is performed as follows: to the ethereal extract are added, first, a few grains of powdered resin of guaiac; next, 20 drops of old oil of turpentine; the mixture is then well shaken. A positive test is indicated by the appearance of a blue or violet color within fifteen minutes. Following the majority of writers on the subject, I have considered colors ranging from purple to pure blue as positive, all others as negative.

For the aloin test, a fresh solution was always used, prepared by dissolving a knife-point of aloin (Merck) in ½ test tube 70% alcohol. Of this solution 2 or 3 cc. are added to the ethereal extract, and then 20 drops of old oil of turpentine. If positive, a color varying from rose to cherry-red, should appear within fifteen minutes.

In the following series, only those cases are considered positive, which gave positive reactions with both guaiac and aloin. A careful examination to exclude other sources of hemorrhages (nose-bleed, hemorrhoids, etc.) was made in all positive cases, and all articles were excluded from the diet which might give rise to error.

Description of the Cases. — Sixty-eight consecutive cases were taken. The majority did not appear very sick, and, in fact, a comparison with the figures for the year 1905 at the two hospitals shows that the mortality was decidedly low. The death-rate for the whole year (536 cases) was 11%, that for this series was only 7%.

Results of Examinations. — Eighteen cases out of the 68 gave positive tests at some time during the course of the disease. One of these was complicated with enteritis, to which the presence of blood was probably due; there remain 17, or 25%, which showed the presence of occult blood. In all, 422 stools were examined, of which 42 were positive, *i. e.*, 10%.

A division into groups, according to the severity of the disease, gave the following results:

Fifteen mild cases, 3 positive, 20%.

Thirty-nine moderately severe, 10 positive, 26%.

Fourteen severe or fatal, 5 positive, 36%.

One sees that the frequency of positive results increases with the severity of the disease.

A glance at the subjoined table shows that the occult hemorrhages, beginning in the second week, persist through the following week, and reach their maximum in the fourth week. The fifth week, usually afebrile, gives the lowest figures, 4.6%. During the relapse, one case only was positive, or 9%.

Period.	No. of Cases.	No. of Positive Cases.	Per cent of Positive Cases.	Total No. of Exams.	No. of Positive Exams.
1st week,	2	0	0	2	0
2d week,	29	5	17	67	7
3d week,	48	8	17	137	17
4th week,	40	9	22.5	99	13
5th week,	22	1	4.6	46	1
Relapse,	11	1	9	37	2

Five cases of typhoid in children under the age of fourteen years were examined, with positive result in one (20%). This patient, a child of nine, showed traces of blood on two occasions, on the eleventh and twenty-fifth days of the disease, respectively.

A study of the positive cases brought out the following facts. The temperature, on the day of positive reactions, was considerably elevated in most cases; in 5, however, it had nearly, or quite, reached normal. Diarrhea was present in 11, absent in 6 cases. The number of positive results was not large, averaging 2.4 per case. It is probable, however, that a daily examination of the stools would have given higher figures.

The relation to gross hemorrhages is interesting, but disappointing. Hemorrhages occurred in 7 cases (10%); in 6 of these, although stools were examined in all within the preceding twenty-four hours, the tests were negative. In one case only were positive results obtained before the bleeding became manifest.

The prognosis was certainly not unfavorably affected by the occurrence of occult hemorrhages, for the mortality of the positive cases was 5.5%, while that of the whole series was 7%. Of the 6 cases in which gross hemorrhages occurred without premonitory positive tests, 4 died.

The Literature. — Joachim,[2] in 1904, was the first to publish results of guaiac reactions on the stools of typhoid patients. He found positive tests in 2 out of 6 cases (33%).

Tedeschi[3] examined "many" cases, and never obtained positive results in the first two weeks. In the third week, 3 cases out of 24 were positive (12.5%). One case, during a severe relapse, showed positive reactions on three successive days; on the fourth day, intestinal hemorrhage took place. Of 3 cases with peritonitis, 2 were positive, the third, said to be peritonitis "by propagation," was negative (no autopsy or operation).

In an interesting paper, Petracchi[4] gives his results based on a material of 18 cases, with examinations every other day. Of these, 8 were positive (44%). He includes as such, however, some that were positive to aloin, but negative to guaiac. Of the 10 negative cases, all recovered, whereas 3 of the 8 positive cases died. In 4 cases a gross hemorrhage followed one to five days after the first appearance of a positive reaction. In 5 cases the appearance of the aloin reaction was accompanied by a rise in the pulse-rate of 10 to 22 beats; in 3 of these a large hemorrhage followed. He regards this combination as a very important means of foretelling hemorrhage.

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[1] Boas, I.: Ueber die Diagnose des Ulcus Ventriculi, etc. Deutsche med. Woch., 1903, p. 865.

[2] Joachim, G.: Berliner klin. Woch., 1904, p. 466.

[3] Tedeschi, E.: Cronaca della Clinica Medica di Genova, 1904, p. 370.

[4] Petracchi, C.: Zeitschr. f. klin. Med., 1905, No. 56, p. 167.

Zuccola[5] reports 23 cases of typhoid fever, with daily examinations of the stools. His results are unique, for he obtained positive tests in every case, and frequently throughout the course of the disease. He found in most cases early hemorrhages at the end of the first and beginning of the second week, corresponding to the stage of infiltration; later, "occult" hemorrhages were always present during the third week, at the time of the separation of the sloughs. They were more extensive and prolonged than the early ones. Positive tests were obtained as late as the thirty-eighth day.

The statements of Steele[6] are in striking contrast with those of Zuccola; 3 cases positive out of 19, or 16%. The positive reactions were all in the second week, and occurred but once in each of the 3 cases; 92 stools were examined in all.

Cattaneo[7] examined 3 cases, with positive results in one. In a fourth case, the reactions were positive for seventeen days after a large hemorrhage.

The conflicting statements with regard to the presence of blood in the stools in typhoid, as shown by the guaiac and aloin tests, are probably due to several causes. In the first place, they may be due to variations in the severity of the epidemic; for instance, Petracchi, with a mortality of 17%, found 44% positive; I had 25% positive, with a death-rate of 7%. Secondly, differences in technique and in the frequency with which the stools were examined are of importance; and thirdly, the personal equation, which is apt to be large when a color reaction is in question. The difficulty in determining the exact date of onset of the disease explains the discrepancies in the statements as to the period of greatest frequency of occult hemorrhages.

Conclusions. From my own work and that of others, it would appear that:

(1) Occult hemorrhages may be detected by the guaiac and aloin tests in about 25% of all cases of typhoid fever.

(2) The application of these tests is of little value as a means of foretelling gross hemorrhages.

(3) It is of very little value in diagnosis, owing to the inconstancy and comparatively late appearance of positive reactions.

It seems probable that more complicated chemical methods would show a larger percentage of positive results, for the separation of the sloughs must always be attended by some hemorrhage, however slight. Such methods, however, will probably consume too much time to be applicable to clinical work, and would be of doubtful practical value, owing to the increased difficulty of excluding hemorrhage from other sources.

For kind permission to make use of the material, I wish to thank Drs. R. H. Fitz, J. J. Minot, F. C. Shattuck and H. F. Vickery, of the Massachusetts General Hospital, and Drs. G. B. Shattuck and J. L. Ames, of the Boston City Hospital.

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[5] Zuccola, P. F.: Clinica Medica Italiana, April, 1905, p. 193.

[6] Steele, J. D.: Am. J. Med. Sc., July, 1905, p. 49.

[7] Cattaneo, F.: Revista Critica di Clinica Medica, November, 1905, p. 713.

SORE THROAT. ETIOLOGY AND THERAPEUSIS.

BY EDMUND D. SPEAR, M.D., BOSTON.

THE first tonsil is a distinct glandular organ situated in the naso-pharynx and was clearly described by Luschka, whose name it bears.

Whenever one discovers an acute inflammation of the throat he must predicate the presence of a chronic affection of the same. Dividing, by age limit, the usual types of sore throat into those of youth, of middle age, and of senility, it is fair to assume that the infections of childhood shall furnish the greatest proportion of cases.

It is proposed to call attention principally to those forms of disease of the throat of which the most important clinical symptom is dysphagia. In this connection it is made evident that the first subjective evidence of infection will be manifested to the patient by pain during the act of swallowing. This dysphagia, at first noticed only as a slight lameness of the throat muscles, rapidly increases to localized soreness, describable as a "spot," usually to the side of the pharynx, and coincident with the usual site of infection in the naso-pharynx.

In explanation of the actual cause of sore throat, it will be recalled that the muscular tissues in this region spread out over the surface of the bones forming the pharynx, and grow thinner as they approach the caput pharyngis, over the basilar process of the occipital bone. The swelling of these tissues, together with infiltration into their substance by the products of inflammation, causes pressure upon underlying nerve filaments, which become more strongly compressed by the fibers of the pharyngeal constrictors contracting during deglutition.

As stated above, and bearing upon the question of early abortive treatment of tonsillar abscesses, it is noted that "sore throat" may be quite noticeably severe many hours before local objective symptoms are discoverable by ordinary inspection of the fauces. As the disease advances the infiltration of the deeper muscular structures of the fasciæ and of lymphatic vessels increases so that movements of the head or neck produce distress and pain. In very many severe cases of infection, however, *especially in those of incipient tuberculosis and of influenza*, there is great disparity between the evident intense constitutional infection and the local disease at the site of infection. Emphasis is intentionally laid upon an apparent absence of local manifestations because the naso-pharyngeal tonsil being " terra incognita " to most physicians lies also out of sight and therefore out of mind. Moreover, it is seldom possible during an acute infectious invasion of this region to make use of the rhinoscopic mirror. In individual cases, therefore, the skilled observer depends upon past experiences, and either immediately resorts to digital exploration, or direct treatment of this region. It is invariably the case that the first tonsil is entirely forgotten by the physician because the systemic disturbance would seem to demand so much attention. The fact remains, however, and has recently been explicitly confirmed by T. Clifford Allbutt, that reinfection is a constant factor in influenza, and this must occur, in the present writer's opinion, through the first tonsil. It is his belief that the most likely agency in this process of reinfection is the patient's own clothing. In the daytime the handkerchief, towel, and outer garments, and at night the bedding, more especially the pillow, serve as the media for this reinfection. Taken in connection with the fact that the situation of the infected areas in the naso-pharynx together with its condition of repose during sleep, during which the nasal chambers are more completely filled on account of a reflex vaso-motor paralysis, and respiration is more buccal than nasal, all conditions favorable to the development of noxious micro-organisms obtain.

In eliciting the presence of this symptom of soreness of the throat one should ask the patient if there is soreness or pain upon swallowing, then by watching the act performed one may note if there is difficulty or slowness, or if the head is held in any favored position. Examine the fauces under good illumination to determine to what extent, and upon which side, an acute process is situated. Feel along the sides of the neck for tender lymphatics and glands. Examine the nose and note its condition as regards swellings and secretions.

In the majority of cases study of the character of the voice will determine the location of the more important lesions. Hoarseness indicates affection of parts below the pharynx. A nasal tone implies obstruction, and the type of tone varies with the location: deeper if post-nasal, high pitched and feeble if nasal; in a monotone and repressed if there is extensive exudation and swelling, as in tonsillary abscess.

While deciding the question of diagnosis between what may be termed acryptic and cryptic infectious diseases, the former, because of their accompanying rashes being almost self-evident, while the latter are entirely concealed, it is allowable to use the cotton carrier dipped in some sterile liquid. Passed into the post-nasal space it will almost always reach the " sore spot " and will be brought out coated with blood or purulent material. Cultures made from dry swabs should include exudates from the deepest parts, although the discovery of any pathogenic germs in the nasal discharges is confirmatory of corresponding conditions. For example, if Pfeiffer's bacillus of influenza is present in the muco-purulent nasal secretion it may be correctly inferred that the constitutional symptoms are the syndromes of the local infection which cause the " sore throat."

Treatment for " sore throat " is palliative or curative. Often with feelings of deep regret the writer recalls his early experiences with cases of throat disease. In the light of acquired knowledge the differentiation of the various constitutional diseases, including the exanthems, with the localization of their port of entry, have served to remind him of the fallibility of man, and he wonders at the credulity which caused him to prescribe sprays and gargles which ever proved valueless and inert.

It has been clearly indicated in this article that " sore throat " is usually the symptom of the invasion of the post-nasal tonsil, and through the circulatory system, of the economy by an infection. This latter, which was formerly spoken of as a contagium vivum, is now understood to include with the true materies morbi a specific micro-organism, its toxins and their various derivatives.

In children, whose post-nasal space is usually filled with adenomatous masses, and in whom exposure produces congested throats, this invasion may be the precursor of one of the exanthems, such as measles or scarlet fever, or of even more serious contagious disease, as diphtheria, cerebro-spinal meningitis, and of pertussis, of rheumatic fever, or of influenza.

These serious infections should be treated locally with the energy and thoroughness which their character demands. It is inconsistent with theory to allow the dangerous sequelæ which are constantly occurring from the toxemia to continue, and it is unwise, even with diphtheritic cases, to place full dependence upon the use of anti-toxin.

The writer, therefore, firmly advocates the removal of adenoids and direct sterilization of the naso-pharynx at the earliest possible moment.

Clinical Department.

A CASE OF RECURRENT SPONTANEOUS GANGRENE OF THE INDEX FINGER: SUCCESSIVE AMPUTATIONS OF THE PHALANGES: ABATEMENT OF THE PROCESS AFTER EXCISION OF A PORTION OF THE RADIAL NERVE AND STRETCHING OF THE MEDIAN.*

BY E. A. CODMAN, M.D., BOSTON,

Surgeon to Out-Patients, Massachusetts General Hospital.

The patient was a slight, undersized girl of sixteen years, of somewhat nervous appearance and behavior, and was first seen at my clinic at the Massachusetts General Hospital on May 16, 1904. Her mother is living; her father died of " heart trouble." She has one sister and seven brothers; all are living and well. Twelve weeks before I saw her, she first began to have trouble with the index finger of the right hand. She said that it began by a cut from a piece of glass. This cut was a mere scratch and could hardly be seen. At this time a black spot appeared on the tip of the finger and there was great pain in the finger radiating into the arm and shoulder. Presently the skin on the palmar side of the tip of the index finger all turned black and the pain became less. On the next day she went to the Boston City Hospital where she says that they scraped the spot, and for the following two months, treated it with "many salves, powders and other things." About the 1st of May she went to the Homeopathic Hospital where the lesion was treated for a week.

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* Read at the Surgical Section of the Suffolk District Medical Society (Library Meeting), Jan. 24, 1906.

At the time I saw her, May 16, 1904, it was noted that there was a circular ulcer on the palmar side of the tip of the right index finger with round contour and concave surface. The base of the ulcer was formed by exposed phalangeal bone and there appeared to be no attempt at healing. There was no proud flesh, no induration, no inflammatory thickening of the edges or of the joint. The sore resembled a primary lesion except that it was not indurated and the bone was exposed at the base.

On May 17, I gave her ether, amputated the terminal phalanx, and, since it was not likely to heal by primary union, I merely approximated the flaps with one silkworm gut suture. A section of the wall of the ulcer was examined by Dr. J. H. Wright who reported that there was no evidence of syphilis or tuberculosis. Two days later the wound showed slight infection. On the eighth day I removed the stitch; redness and inflammation were subsiding. The tissue looked healthy, but the granulations were not active and on the whole had much the same appearance as when first seen.

On June 13 the wound had entirely healed, but the stump was painful.

On June 21 she was discharged well. On June 23 the wound had broken open again and it was decided to amputate somewhat higher in the finger. On June 25 part of the second phalanx was resected and the wound closed with a protective wick. After this operation there was a good deal of pain. On July 12, the seventeenth day, there was a necrotic dark-colored area on the tip of the stump, no redness or inflammation. On July 19 it was noted that the area was decreasing in size. From July 19 to Nov. 3 I have no notes. The patient went to New Brunswick on Sept. 15 and returned in October. During this time the finger had been painful and is said to have healed or nearly healed about the 1st of October.

On the night of Nov. 1 her whole arm pained her very much and when she woke up in the morning she found that at the base of the stump of the index finger there was a black gangrenous spot the size of a dime.

On Nov. 3 she came to the hospital again and it is noted in the records that over the metacarpophalangeal joint of the index finger there was a gangrenous dry area, slightly smaller than a dime. There was a rim around this area of white and beyond this the skin was slightly reddened. The whole hand was cold and damp and the girl shrank at any attempt to touch it.

On Nov. 5 the area of gangrene was increasing in size. The pain was severe enough to keep her awake.

The examination on Nov. 10, as recorded in the records of the Skin Department, for which I am indebted to Dr. Bowen, is as follows:

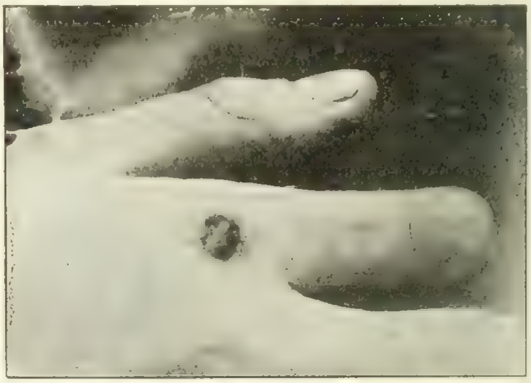
"Right index finger has been amputated at the middle of the second phalanx. At the base of the index finger on the back extending to the inner side is an ulcerated lesion 1 in. by ⅝ in. in extent. This is roughly quadrilateral in outline with undulations. Its base is slightly below the surface level and is covered by a homogenous black crust. The edges of the ulcer are not elevated above the surrounding surface and slope slightly to the base. The forefinger and the outer half of the hand extending slightly above the wrist are swollen and the color is very slightly erythematous. The forefinger as far up as the base of the middle phalanx and along the line extending up the arm along the nerve is markedly tender on pressure." She was given various ointments and general tonic treatment and was admitted to the Skin Ward for observation.

On Nov. 12 the area of gangrene had somewhat increased peripherally, but not in depth. To eliminate the possibility of malingering, a sealed dressing was applied.

On Nov. 14 the area was not increased. The slough was apparently coming off. One corner of the stiff plaster dressing near the site of the lesion was torn, suggesting that the patient had made an effort to remove it. The ulcer was beginning to fill in from its base with bright red granulations. Its mural surface was somewhat less in extent. The hyperesthesia was much less marked.

On Nov. 25 the ulcer was filled in from base leaving a granulating area on surface, moist, pale red, of size of ten-cent piece.

Dec. 1, nothing remains but superficial ulceration, which is healing rapidly from its sides, so that the ulcerated portion measures ⅓ in. in both diameters.



Dec. 3, 1904. While convalescent in Skin Ward.

Dec. 2, sealed dressing left off.

Dec. 8, original lesion is now occupied by an area of redness which is healing, except for minute central and superficial ulcerations. About periphery two or three dark-red, fairly elastic elevations. On the edge towards middle finger is a grape-seed-size, firm, nodular, circular lesion, very slightly elevated. Some tenderness in and about lesion. Skin about nodule looks wrinkled.

Dec. 9, this morning on removing compress put on in ordinary way, there appeared a round, superficial ulceration, ⅓ in. in diameter, base smooth, shiny and dry. Considerable hyperesthesia. The patient has been aware the last few days that she was to be sent home. Sealed dressing reapplied.

Dec. 17, site of old ulcer entirely healed, leaving smooth, shiny surface which is red and slightly infiltrated. Sealed dressing left off.

Dec. 19, patient was informed on Dec. 17 that probably the next day she would go home. To-day, without any premonitory subjective symptoms, there is present over the site of the old lesion an elongated area, denuded of epidermis, about ⅜ in. wide with base secreting profusely, the edge showing tag of epidermis, suggesting remains of vesicle. Sealed dressing reapplied.

On Dec. 21 the lesion was healed over with crust formation.

Dec. 25, patient has symptoms of sore throat.

Dec. 26, diphtheria, transferred to the South Department of the Boston City Hospital.

On March 4, 1905, the patient appeared again at the Massachusetts General Hospital. She said that during her absence the finger had not really healed and that the day before in five or ten minutes there suddenly appeared a lesion on the inner side of the right index finger. The character of the lesion when first seen is not noted, but on March 4 it is described as an ulcer ½ in. in diameter covered with a blackish eschar.

On March 9 the ulcer occupied the inner(?) side of the finger and was covered with a blackish crust.

March 17, she entered the hospital in the service of Dr. S. J. Mixter. Ether was given and the stump on the index finger disarticulated at the metacarpophalangeal joint. She was discharged to the Out-Patient Department, March 24. Whether primary healing occurred is not noted.

On April 13, it is noted that a gangrenous area had appeared on the back of the hand on the inner end of the amputation scar. At this time I saw the patient again in the Out-Patient Department and made an incision, under cocaine, about half way up the arm and excised two or more inches of the radial nerve, starting at the point where it emerges from the fascia; at the same time I excised and curetted out the gangrenous area.

On April 17 the wound was clean.

On April 18 a small area of gangrene appeared to the inner side of the seat of the old ulceration, that is, in the area of the distribution of the median nerve, not in that supplied by the radial.

April 20 the gangrenous area was considerably larger. The patient had had much pain and could not sleep well.

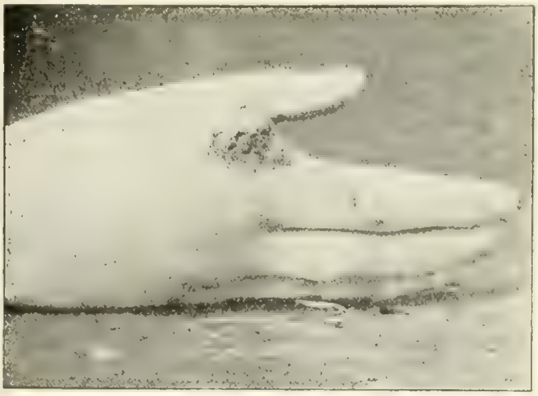
On April 21 I showed her to some of the members of the Society of Clinical Surgery, among whom were Dr. Murphy, of Chicago, Dr. Crile, of Cleveland, and Dr. Cushing, of Baltimore. All agreed that the disease was not Raynaud's disease, but no definite name could be given to the condition. It was thought that the ulcerations might be caused by some disturbance of the nerves controlling the local nutrition. Dr. Murphy suggested that stretching the brachial plexus might be of help. It is chiefly on account of Dr. Murphy's suggestion that I desire to record this case.

On April 22 the area was still enlarging and she was referred again to the main hospital. At this time the ulcer was about a square inch in extent. She was given hot and cold douches and massage of the arm.

On May 9 there had been slight improvement. The slough was less extensive. The ulcer was closing in. She was discharged to the Out-Patient Department. Within a few days the gangrenuos area began to extend again and the black crust formed as before. The area of the ulceration since the excision of the radial nerve had extended towards the median distribution and only to a slight extent on the radial.

On May 15, the patient was again admitted to the hospital, and on May 16 I gave her ether, dissected out the median curve in the middle of the forearm and stretched it as much as I dared to do without breaking it. After this operation the patient had severe pain in the whole arm and also abdominal pain, and for some days an inability to pass her water. She had to be catheterized for nine days. There was also severe pain in the whole arm and shoulder requiring hypnotics.

She was again treated in the Out-Patient Department without much improvement. There was great pain and the ulceration progressed considerably, attaining a larger size than it ever had before, also extending to the deeper tissues.



April 28, 1905. Two weeks after excision of radial nerve.

On June 24, it was noted that the ulcer was rapidly progressing in size. The dorsal tendon of the middle finger was exposed and sloughing. The red area extending 1½ in. on the dorsum of the hand. She was treated with wet corrosive dressing.

On June 26, improvement began. On June 28, it was noted that the metacarpal bone was exposed. Improvement progressed rapidly until by July 29 the whole area was closed in.

On Aug. 4, to prevent recurrence and improve the circulation, Cushing's treatment for Raynaud's disease with hyperemia following the application of a tourniquet was begun.

On Aug. 11 all dressings and splints were removed and the patient was told to return in a week. There was no further note until Nov. 23, 1905, when she returned complaining that the hand was cold even in a glove.

Nov. 25, Cushing treatment continued. At this time it was noted that there was anesthesia over the radial area and diminished tactile and painful sensations over the median area.

Dec. 20, the patient has been using the tourniquet at home with some benefit to the circulation in the hand. There has been no ulceration since Aug. 1 and no pain since the end of September.

On Jan. 24, 1906, I showed her at the meeting of the Boston Medical Library at which Dr. Murphy read his paper on the "Surgery of the Nerves." The hand had then been entirely healed for six months.

In conclusion, I wish to apologize for the extremely unsatisfactory fragmentary character of the notes on this case. I can only say that it has been most difficult for me to bring the history into any sort of narrative form. The child has been a well-known character at the Massachusetts General Hospital, for her treatment has been some times undertaken by the surgical, sometimes by the medical, sometimes by the neurological and sometimes by the dermatological departments. The notes were taken by the assistants in these different departments at different times, and while they are very copious and cover a great deal of paper, they are disconnected and mainly devoted to the record of different forms of treatment.

Notwithstanding the numerous medicaments which have been applied, internally and externally, I do not feel that a résumé of them would add to the report. Perhaps the girl expressed it herself very well when she came to the hospital, saying that she had already been treated with many "salves, powders and other things."

Notwithstanding the fact that she has been a patient of nearly every department of the hospital, she has, most of the time, been under my observation, and I have followed her case with a great deal of interest.

While she was under the charge of the Dermatological Department, Dr. Bowen and his colleagues, Dr. C. J. White and Dr. H. P. Towle felt very strongly that the girl herself deliberately caused the lesions. They considered that they had proved this by maintaining the hand in a sealed dressing and they state that while the dressing was thus kept sealed, the ulcers always progressed favorably. There were other points which re-inforced this opinion. At times it seemed as if she deliberately evaded the truth in other matters. For instance, once on being told she was to go home the next day she told the nurse that she had taken the thermometer out herself. The thermometer registered 103°, but when the nurse took the temperature, it was normal. Also the fact that after the last operation she had retention of urine, although she was in no sense sick after the operation. Also her temperament was evidently neurotic.

In answer to these claims I can only say that in my opinion she was not untruthful or inclined to deceive and that the lesions were of such a strange character that they could not possibly have been produced by the girl herself. Such deep lesions produced in any ordinary way would also have led to suppuration and its accompanying inflammatory thickening and induration; on the contrary, the tissues about the lesions in this case were soft, seldom even slightly edematous and the line of demarkation was perfectly distinct.

It was also noted that whenever treatment was applied, whether the dressing was sealed or whether it was not, there was usually a point reached in the ulceration when it began to improve and continued to do so even to a point of being entirely healed. Another gangrenous area would then appear. The theory that she caused the lesions herself is also unable to explain the subjective and objective coldness of the hand and the extreme pain which the child suffered. There was a curious combination at times of great pain and local anesthesia, except on the ulcer itself, *i. e.*, there might be extreme pain in the arm, but the tissues even close to the lesion would be free from inflammation and tenderness.

As to treatment it can only be said that the final healing took place while she was having local dressings of weak corrosive solution. That this was not the entire reason for the healing I am convinced, because she had repeatedly had similar treatment, but without great improvement. However, during the time that it finally healed these dressings were applied more continuously and faithfully by an especially skillful assistant. Whether or not the excision of the radial and stretching of the median nerve had any effect in bringing about the final cure, I do not feel certain. I am inclined to think that these operations were the cause of the final healing, but I by no means regard it as proved. Certainly, after the stretching of the median there followed the worst attack of ulceration which the patient had had; when this had reached its height, it rapidly subsided and has not since reappeared. I may also remark for the benefit of those who might attribute the cure to suggestion that Dr. Murphy spoke with great emphasis, in the presence of the girl, of the good to be obtained by nerve stretching.

AN ABDOMINAL INJURY.

BY C. A. ATWOOD, M.D.,
Surgeon to Morton Hospital, Taunton, Mass

J. C., aged sixty years, driver of fire engine.

Never had any serious injury or illness until February, 1905. As he was drawing hose wagon into fire station some bystanders suddenly shoved the carriage, the pole of which struck J. C. a violent blow in the lower part of his abdomen. He felt faint and sat down for a few minutes, but soon resumed his work. Later he felt more or less pain and his abdomen became hard and sensitive. In May, 1905, as he was driving to a fire he experienced sudden relief from pain and distention. He returned to his home and found his underclothing soaked with dark-colored fluid which poured from his umbilicus. He continued his work as driver every day.

About the latter part of August there was still some discharge from the umbilicus and increased pain and tenderness in the right lower abdominal quadrant. This condition became so aggravated that he took to his bed. I first saw him Sept. 3, 1905. At the time there was a slight purulent discharge without odor from the umbilicus, the lower right quadrant of the abdomen was occupied by a hard resisting mass, the right spermatic cord was enlarged and tender. Pressure on the mass caused pus to flow from the umbilicus. A diagnosis of abdominal abscess was made and an operation advised.

Operation at Morton Hospital Sept. 8, 1905. Patient prepared as for a laparotomy. Incision under ether made into the center of mass in the lower right abdomen. Dense mass of inflammatory tissue cut through. No free fluid found. As the patient had a poor heart and the danger of infecting the whole abdominal cavity seemed imminent a gauze wick for drainage was inserted and dressing applied. Fistula continued to discharge, the hardness and tenderness not so great. Sept. 20, 1905, wound closed. Gave ether again, a long director was put into the fistulous opening in the umbilicus and laid open for several inches. On inserting the finger a hard mass could be felt deeply imbedded in the abdominal wall and nearly four inches from the umbilicus in the sheath of the rectus muscle; by means of a forceps two hard, rounded concretions about the size of horse chestnuts were removed, the wound was partially closed and gauze packing used; for several days there was a fecal discharge from the wound which was dressed. This discharge entirely ceased, the wound and fistula have completely closed, there is no hernial protrusion and

J. C. has gone to his work as driver Nov. 1, 1905. The original accident in all probability so injured the intestines as to cause a rupture, walled off from the general peritoneal cavity, this causing a fecal fistula. The removal of the fecal concretions from the abdominal wall which were acting as foreign bodies caused the fistula to close.

The case is remarkable inasmuch as the man kept at work for months every day after the injury, and also as showing the power of the peritoneum to protect itself from danger.

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Reports of Societies.

ABSTRACT REPORT TWENTY-FIRST ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS.

Washington, May 15 and 16, 1906.

(Concluded from No. 1, p. 19)

May 16, Morning Session.

A CASE OF SEPTICEMIA, WITH HEMOLYSIS AND METHEMOGLOBINEMIA, DUE TO THE BACILLUS COLI COMMUNIS.

Drs. A. D. Blackadder and B. D. Gillies, Montreal, read this paper, which consisted in the report of a case, a woman, aged twenty-seven years, suddenly seized during the night with severe pain in suprapubic region, and rigors, followed by pyrexia, vomiting and a moderately profuse sanguinous vaginal discharge. Had been apparently in good health and spirits the day previous. The following morning a distinct bronzing of the skin noted; marked dyspnea; tenderness in the suprapubic region; temperature 102° F.; quick, weak pulse, and a sense of great depression. She entered the Montreal General Hospital the same evening. Condition on entrance was one of profound exhaustion; there were delirium, severe frontal headache and great restlessness; color of the skin had distinctly deepened. Moderate stimulation was employed. On examination the following morning the skin was everywhere of a light brown tint, resembling that of a mulatto; the conjunctivæ were suffused and much tinted; the thoracic organs appeared normal; there was no increase in either hepatic or splenic dullness; a moderate degree of tympanites existed. The extremities were cool; the temperature 103° F.; pulse 140 and only perceptible at the wrist; respirations between 40 and 50. The urine contained albumin, a few red blood cells and numerous bacilli resembling the bacillus coli communis. Examination of the blood showed 2,704,000 red cells, 79,200 whites and 48% hemoglobin. The blood was dark, flowing with difficulty; the serum was of a yellow tinge; crenation came on rapidly; the fibrin net formed in seven minutes. Under the microscope some fragments of red cells were seen in leucocytes, and one fine needle of hemoglobin. Death occurred the same evening. Cultures from the blood ten hours before death gave a pure culture of the bacillus coli cummunis; cultures from the ventricles of the heart, from spleen and kidney, and from lining of mucosa of uterus, all gave a pure culture of a bacillus presenting same morphology, appearance and staining properties as the bacillus coli communis. Cultures from liver, gall bladder and brain remained sterile. Cultures from the urine before death gave the bacillus coli in pure culture. The blood from the ventricles was a deep chocolate tint and gave the spectrum reaction for methemoglobin. Autopsy revealed a septicemia with hemolysis and methemoglobinemia; subinvolution of the uterus; retained secundines; acute cystitis; hyperplasie of spleen; healed tuberculous nodule at apex of right lung; cloudy swelling of kidneys; and fatty liver.

Dr. Janeway, New York, said the possibility of mercurial poisoning had to be taken into consideration in some of these cases of sudden, severe abdominal pain; he had had four such cases within six months.

Dr. Sternberg, Washington, said the experimental injection of the bacillus coli communis in animals gave symptoms very much like those described in the paper; the fatty changes in the liver cells and in the kidneys were very similar. He considered this a case of infection with the colon bacillus in a very susceptible individual.

Dr. Blackadder, Montreal, in closing said that one of the most characteristic effects of bichloride poisoning was inflammation of the colon; here the colon showed no inflammatory reaction whatever.

HEMOCHROMATOSIS AND DIABETES MELLITUS.

Dr. T. B. Futcher, Baltimore, presented this paper, which reported two fatal cases of hemochromatosis with diabetes mellitus as a terminal event. The paper dealt mainly with the clinical features of hemochromatosis and the cases in the literature in which the disease has gone on to diabetic stage were reviewed. He said there was a triad of symptoms: first, pigmentation of the skin and viscera; second, hypertrophic cirrhosis of the liver; third, diabetes. In the last two years there had been two cases at the Johns Hopkins Hospital that had gone on to the diabetic stage.

Dr. J. B. Herrick, Chicago, said that he had recently seen a case which had diabetes, with atrophic cirrhosis of the liver, and tuberculosis of the lungs, but with no pigmentation of the viscera. He thought that with this triad of symptoms one might be mistaken if he did not go back into the history of the patient.

REPORT OF A CASE OF UNIVERSAL CONSTANT ITCHING WITHOUT SKIN LESION. UROBILINURIA. PECULIAR ERYTHROCYTOLYSIS.

Dr. John K. Mitchell and Dr. Alfred R. Allen, Philadelphia, reported this case in which there was universal itching without any skin lesion, lasting for three years; the chief interest of the case was in the urinary and blood findings; urine was of a dark port-wine color; urobilin found constantly. It was considered as being of a hematogenous rather than a hepatogenous source as there were no bile elements found at any time; no jaundice. Blood showed peculiar changes in the red cells; high eosinophilia; unusual form of non-staining granular bodies in the erythrocytes; Raynaud's disease a complication. The treatment was by alteratives, baths, massage, and there was great improvement.

Dr. W. S. Thayer, Baltimore, inquired if parasites were found in the blood. He had been in the habit of looking upon that kind of a history with suspicion unless the parasites were demonstrated.

Dr. Mitchell, Philadelphia, in closing, said that the patient had lived in a malarial region where everyone had malaria, but it had been six years since he had left that country, which may have accounted for no parasites being found.

A CASE OF ESSENTIAL PENTOSURIA.

Dr. Theodore Janeway, New York, read this paper, which was a brief review of the knowledge of pentosuria, the report of a case, with a study of the effect of diet and a demonstration of the pentose reactions. All that could be said of the real nature of the malady was that it was entirely different from diabetes, but represented a changed metabolism. Fluid that reduces Fehling rapidly and then changes to a greenish yellow without precipitate, should be looked upon with suspicion. He thought the matter of importance as regards the question of life insurance examinations.

APLASTIC ANEMIA, WITH REPORT OF A CASE.

Dr. R. S. Lavenson, Philadelphia, reported this case, which was that of a woman, thirty-five years of age, previously healthy, who, without apparent cause developed a profound, rapidly fatal anemia. The prominent features of the blood analysis were oligocythemia, oligochromemia, a scarcity of normablasts, an absence of megaloblasts and a leucopemia with relative lymphocytosis. Autopsy showed complete aplasia of the bone marrow.

Dr. R. C. Cabot, Boston, had seen two cases which he believed to be aplastic anemia, but he had not reported them because there had been no autopsies. The practical point, he said, was as to prognosis; the cases go straight down, from bad to worse, in contrast to pernicious anemia which shows waves of improvement.

Dr. A. S. Warthin, Ann Arbor, had come to look upon the changes in the bone marrow as secondary and not primary and thought this form should be called the hemolytic rather than aplastic.

Dr. Alfred Stengel, Philadelphia, disagreed with Dr. Warthin as to the bone marrow changes. He thought there was lack of hemogenetic function.

Dr. W. S. Thayer, Baltimore, agreed with Dr. Cabot that there was a sharp distinction between these cases and those of progressive pernicious anemia and that the prognosis was very bad.

Dr. Shattuck, Boston, asked if it were not well to make the differentiation a clinical one rather than a pathological one, just as a distinction was not made between hemorrhagic smallpox and ordinary smallpox pathologically. He thought there was simply no power of regeneration.

Dr. E. L. Opie, New York, considered the disease a primary one of the bone marrow.

MULTIPLE CEREBRAL HEMORRHAGES IN LEUKEMIA.

Dr. James B. Herrick, Chicago; reported this case of chronic myelogenous leukemia in which death was due to multiple, discrete, cerebral hemorrhages.

Dr. A. S. Warthin, Ann Arbor, said these cases were of great importance to the ophthalmologist, who often overlooked the condition. The growths appearing in the orbit he thought were to be classed with the leukemias.

EXPERIMENTAL STUDIES ON THE LEUCOLYTIC SERUM PRODUCED BY THE ACTION OF THE EX-RAY IN LEUKEMIA.

Drs. J. A. Capps and J. F. Smith, Chicago, presented this subject. It was demonstrated that by means of leukolytic serum from a leukemic patient treated by the x-rays, injecting it into animals, a destructive action upon the cells of the animals was produced. When added to the leucocytes of the human being it also produced destruction of the cells. The injection of leucolytic serum from x-rayed leukemia into leukemic patient not under treatment showed marked leucolytic action. As to the therapeutic value of the method more work had to be done before anything definite could be known.

Dr. A. S. Warthin, Ann Arbor, said there was great instability of these cells in leukemia and almost anything would cause their destruction.

Dr. Simon Flexner, New York, asked whether any alteration had been noticeable in the condition of the superficial glands after the injections. He had carried out some work a few years ago with serum made from the lymph glands of rabbits. These phenomena were observed with the injection of that serum, but associated with it there was marked enlargement of the lymph glands.

Dr. D. L. Edsall, Philadelphia, believed that one of the main actions of the x-ray was to influence the activity of ferments in the tissue. Its most immediate action was that of a ferment accelerator.

Dr. Solis Cohen, Philadelphia, asked if the possibility had been considered of a double action of the serum, a leucogenerative as well as a leucolytic element.

Dr. Capps, Chicago, said in closing the discussion that they had found that the normal serum and the serum from patients not under x-ray treatment did not produce these changes; they had used that as a control. In answer to Dr. Flexner's question he said they had not observed any change in the lymph glands. As to Dr. Cohen's suggestion regarding a leucogenerative element, he thought the rapid rise in leucocytes before the last injection might lead one to suppose that there was such an element.

THE NUCLEUS TEST IN PANCREATIC DISEASE.

Dr. J. Dutton Steele, Philadelphia, read this paper, which confirmed the experiments of Schmidt and Wallenfang upon dogs which showed that in complete lesions of the pancreas the muscle nuclei of ingested meat were not digested. His cases and experiments appeared to show that by a modification of Schmidt's method partial lesions as well as complete may be demonstrated. He reported a case of azotorrhea in which the indigestion of muscle fiber was apparently dependent upon chronic appendicitis and not upon disease of the pancreas and which was cured by removal of the appendix.

OCCULT BLOOD IN TYPHOID FEVER.

Dr. J. Dutton Steele, Philadelphia: This paper was read by title.

NOTES ON DIAGNOSIS OF PANCREATIC DISEASE.

Dr. J. H. Musser, Philadelphia, presented this subject. He said the diagnosis of pancreatic disease could only be suggestive so far as laboratory methods were concerned. He had concluded that the recognition of pancreatic disease depends not to the same extent or degree upon examination of the urine and feces as upon study of the clinical course of the disease, previous history of the patient and objective signs.

Dr. D. L. Edsall, Philadelphia, felt exactly about the matter as Dr. Musser did, that no laboratory tests approached the advantage of careful clinical observation in this disease.

Dr. L. F. Barker, Baltimore, also looked upon the laboratory tests as of little value.

Dr. W. S. Thayer, Baltimore, had seen a case recently, in a young man of thirty-one, in which the diagnosis was based upon the appearance of the stools, containing large quantities of fat. Autopsy confirmed the diagnosis.

SOME EXPERIMENTS UPON THE DIGESTIVE ACTIVITY OF PEPSIN IN THE GASTRIC CONTENTS.

Drs. Joseph Sailer and C. F. Farr, Philadelphia, described the methods of estimating the peptic activity and considered the advantages and disadvantages of Mott's method. They considered the effects of various foods and products of digestion upon the peptic digestion by artificial solutions and filtered stomach contents and the effect of various food preservatives upon peptic digestion, and artificial stomach contents. Boracic acid in concentrated solution did not inhibit in any way peptic digestion. Benzoate of soda did, as did also sodium salicylate and salicylic acid, while sodium sulphate produced a strong inhibitory action. Alcohol had very little inhibitory effect. In a solution of 66% the inhibition was only slight.

REPORT OF A CASE OF GLANDULAR FEVER WITH DERMAL LESIONS SUGGESTING SYPHILIS.

Drs. Alfred Stengel, J. William White and **S. J. Evans**, Philadelphia, presented this case. They got a culture from the blood, glands and tonsils of a streptococcus resembling the streptococcus equi found in glandular fever of horses and epidemic coryza of horses. There was absence from the blood serum and liquid of the glands of the treponema pallida. There had been gradual improvement without treatment. The patient was a young girl of twenty-six who presented herself with a skin eruption and sore throat. Vague pains in the body and joints. Some fever. Developed large gland in the left side of the neck and then all the glands became enlarged. Appearance was that of erythema multiformans.

Dr. William Welch, Baltimore, emphasized the caution needed before launching a new pyogenic streptococcus. He judged from the brief description that, with one exception, the peptonization of milk, there was no characteristic that could not be found in the streptococcus pyogenes. The streptococcus equi was a very different organism from the human.

Dr. Henry Koplik, New York, feared that the differentiation of Dr. Stengel's would cause confusion, especially as there was already, in children, a disease described as glandular fever.

Dr. Stengel, Philadelphia, said in answer to Dr. Koplik that the title had only been used for the sake of brevity, and he agreed that it might be confusing.

REPORT OF TWO CASES OF GENERALIZED BLASTOMYCOSIS.

Drs. C. Christensen and **L. Hektoen**, Chicago, prepared this paper, which was read by title.

AN EXPERIMENTAL STUDY OF CEREBROSPINAL MENINGITIS.

Drs. Simon Flexner and **Henry I. Houghton**, New York, presented this paper, the study being made, the writers said, with the view of ascertaining the conditions under which the lesions of cerebrospinal meningitis similar to those occurring in man could be produced in the lower animals. It was found that by employing monkeys the lesions could be reproduced. The communication dealt with a description of the lesions resulting from the inoculation of monkeys, chiefly, with cultures of the diplococcus of meningitis. Incidentally, the pathogenesis of the lesions had been studied as well as the relation of the micro-organism and its products to its pathogenic action.

INTERNAL HYDROCEPHALUS COMPLICATING AND FOLLOWING CEREBROSPINAL MENINGITIS.

Dr. Henry Koplik, New York, read this paper. He distinguished three forms: first, the very acute form, patient with symptoms of spinal meningitis suddenly becoming unconscious, rapid, feeble pulse, symptoms of collapse; these were an acute distention of the ventricles; second, where in the course of the disease we have onset of hydrocephalus, with fever and drowsiness; third, posterior basic in which the hydrocephalus becomes chronic. Where the symptoms were not very severe he thought lumbal puncture was not justified at the start; in some cases where pressure is great he thought puncture should be done early. In the subacute cases he believed that puncture at the right time could save the structures from irreparable damage, and these were the cases in which you could tell by percussion when to puncture. In the chronic cases he thought that puncture would not save. He did not believe in the repeated lumbar punctures.

Afternoon Session.

EXPERIMENTAL ARTERIAL DEGENERATION.

Dr. Jos. L. Miller, Chicago, presented this contribution, which consisted of a lantern slide demonstration of changes produced chiefly by substances increasing blood pressure, as adrenalin, digitalis, nicotine, physostigmine, barium chloride. Similar changes, however, he said, might also be produced by substances that either do not affect, or lower, blood pressure, as phloridzin and lead carbonate.

THROMBOPHLEBITIS OF SPLENIC AND PORTAL VEINS AND ITS RELATION TO SPLENIC ANEMIA.

Dr. A. S. Warthin, Ann Arbor, reported a fourth case of relatively acute splenic thrombophlebitis following pneumonia and presenting features of secondary anemia and splenic fibrosis, in addition to the three cases that had been reported by Dock and Warthin, of typical splenic anemia, showing at autopsy splenic fibrosis associated with stenosis or obstruction of portal or splenic veins due to an old thrombophlebitis. The results of experimental work were given and an attempt made to establish the clinical and pathological entity of splenic and portal thrombophlebitis as a variety of splenic enemia.

A HISTOLOGICAL STUDY OF TWO CASES OF SUDDEN DEATH ASSOCIATED WITH HYPERTROPHY OF THE THYMUS; ONE CASE WITH GENERAL LYMPHATIC ENLARGEMENT; THE OTHER WITHOUT.

Dr. A. S. Warthin, Ann Arbor, presented this report, giving the results of a pathological study of the autopsy material from two cases of sudden death in children associated with thymic hypertrophy. In one case the lymph glands were enlarged, in the other they were small, but the same condition was found in both cases, viz.: Atrophy and disappearance of the lymphoid elements, endothelial and fibrous hyperplasia, etc. Similar changes were found in the spleen and bone marrow. The thymus in both cases showed a lymphoid hyperplasia, eosinophilia, etc. The findings were interpreted as a toxemia resulting in a lymphoid exhaustion of the lymph glands, bone marrow and spleen, and a compensatory hypertrophy of the thymus.

ACUTE DILATATION OF THE STOMACH AND ITS RELATION TO MESENTERIC OBSTRUCTION OF THE DUODENUM.

Dr. Lewis A. Connor, New York, reported this case, which was one of acute dilatation of the stomach and duodenum, with complete occlusion of the lower end of the latter by pressure of root of mesentery and its contained superior mesenteric artery. In an analysis of 90 cases of acute dilatation of the stomach dilatation of the duodenum was found in 60% of the fatal cases. Mesenteric obstruction was demonstrated in 19 cases and was probably present in many others. He demonstrated the mechanism of such stomach dilatation with lantern slides and pointed out the difficulty of determining whether the mesenteric obstruction or the gastric dilatation was the primary condition. Acute dilatation of the stomach was probably due, in most cases, to one of several forms of obstruction in the duodenum, of which mesenteric compression was the most important. There had been satisfactory results with postural treatment in several cases of severe acute gastric dilatation in which such mesenteric compression was assumed to exist.

CLINICAL NOTES ON EXOPHTHALMIC GOITRE.

Dr. W. Gilman Thompson, New York, read this paper. It consisted of notes based upon a study of upwards of eighty cases. In a large proportion of cases an acute febrile toxemia developed, in which, in addition to the cardinal symptoms of goitre, tremor, tachycardia and exophthalmos, the following symptoms were noted: fever, acute dilatation of the heart, cardiac murmurs, dyspnea, pericardial, thoracic or abdominal pain, edema of the legs, erythema, and sweating. Increased temperature (which is not usually described in connection with these exacerbations) frequently reaching 104° F. or more and continued for several weeks. He said it was particularly these toxic exacerbations that may be influenced by the new cytoxic serum. The cause of the sudden toxic exacerbations often appeared to be an intercurrent mild infection, such as an attack of tonsilitis, influenza or bronchitis, or an attack of gastro-intestinal disturbance. The writer also referred to the possibility of mistaking the condition for acute septicemia or malignant endocarditis.

EXOPHTHALMIC GOITRE TREATMENT WITH SPECIFIC SERA.

Dr. John Rogers, New York, read this paper. The writer made a distinction between normal serum and pathological serum; the latter made from the pathological gland; the former by injecting rabbits, dogs and sheep. He said there was one reaction which was rare, but very alarming, from the use of the serum : within about five minutes the patient became flushed, breathing difficult; cyanosed; fear of impending death. He thought this probably due to entrance of the serum into a vein. The regular reaction was, within ten minutes there was a little smarting pain at the point of injection which fades away; the point of injection begins to swell and has the appearance of erysipelas; the constitutional reaction consisted of an exacerbation of Graves's symptoms, which subsided in six or eight hours. It was put up in 1 cc. tubes, which is a dose, given subcutaneously in the arm at intervals of forty-eight hours. Some cases that did not respond to the use of the normal serum did to the pathological. Sera had been made from, first, the nucleoproteids alone of the pathological gland; second, from the nucleoproteids and thyroglobulin combined, of the pathological gland; third, from the nucleoproteids and thyroglobulin of the normal gland; fourth, from the nucleoproteids and thyroglobulin combined of the normal and patohlogical glands together. The different types of Graves's disease observed were: (1) The simple subacute or chronic Graves' s disease; (2) the actual toxic Graves's with fever; (3) the chronic toxic Graves's with fever; (4) the atypical Graves's (*a*) the simple admonatous or cystic goitre, with subsequent Graves's symptoms; (*b*) the cases without goitre; (*c*) the psychopathic cases, which failed in all but one.

THE PATHOLOGY OF GRAVES'S DISEASE FROM THE STANDPOINT OF SERUM THERAPY.

Dr. James Ewing, New York, read this paper. A brief sketch of the past and present theories of the nature of Graves's disease was presented. The contributions on the histology of the normal thyroid and of the diseased organ in simple and exophthalmic goitre were considered and compared with the study of a series of cases of Graves's disease, with the conclusion that histological studies favor the theory of hypersecretion, and the opinion that the thyroid lesion of Graves's disease, while in some respects specific, need not differ essentially from that of simple goitre. Chemical data, he said, offer a definite basis for serum therapy in uncomplicated cases. The possible implication of other organs in all stages, and the permanent lesions in many organs in prolonged cases, seemed to preclude the possibility that any panacea could be found that would be effective in all cases. He thought that the necessary limitations should govern criticism of the action of a serum at any stage of the disease.

METHOD OF PREPARATION AND PROPERTIES OF A SPECIFIC SERUM FOR TREATMENT OF EXOPHTHALMIC GOITRE.

Dr. S. P. Beebe, New York: The writer considered the theoretical basis for the serum, gave a brief summary of the first results with addition of more recent facts. He gave a brief critical review of previous attempts to produce serum having therapeutic value in Graves's disease and described the various methods used by him. He compared the properties of the thyreotoxin with the hepatotoxin and nephrotoxin and considered the possible applications of the sera in other diseases.

Dr. Meltzer, New York, said if the statements made could be substantiated this would be one of the most remarkable discoveries, but he warned against undue enthusiasm as yet.

Dr. W. J. MacCallum, Baltimore, agreed with Dr. Meltzer that the reports were of so startling a nature that they demanded further experimentation for corroboration. He thought investigation of the action of the sera with animals would be of great value.

PHAGOCYTOSIS OF RED CELLS.

Dr. L. Hektoen, Chicago, presented this paper, which was read by title.

THE ENZYMES OF INFLAMMATORY EXUDATES.

Dr. Eugene L. Opie, New York, read this paper. The writer said that phygocytic cells, which have a part in the resolution of inflammatory exudates, digest bacteria and various cellular elements by means of two proteolytic enzymes, one of which contained in the polynuclear leucocytes (like trypsin) digested actively in an alkaline medium, while the other contained in the large mononuclear phygocytes or macrophages (like pepsin) digested in an acid medium.

SOME EXPERIMENTS IN PSYCHOTHERAPY.

Dr. L. F. Barker, Baltimore, presented this paper, which contained a plea for the more systematic application of psychic treatment in the management of functional disorders of the nervous system and gave a number of illustrative cases.

THE EFFECTS OF THE X-RAY ON UNRESOLVED PNEUMONIA, AND THE NATURE OF THE TOXIC REACTION TO THE X-RAY, WITH OBSERVATIONS ON METABOLISM.

Drs. D. L. Edsall and **Ralph Pemberton**, Philadelphia, presented this paper, which contained a report of several cases of unresolved pneumonia in which x-rays were used on account of the author's view that the x-ray stimulates autolysis by acting as an accelerator of ferment action. They showed more or less striking and rapid improvement, with conditions of metabolism similar to those at the crisis in pneumonia. In one case in which a severe toxic reaction occurred immediately after x-ray exposure, and in another in which a similar, but milder, reaction occurred, striking disturbances were noted and these appeared to make clearer the nature of such a reaction, and some of the dangers associated with the use of the x-ray.

The following papers were read by title: "Unusual Cases Observed in a Four Months' Service in the Philadelphia Hospital," Dr. Solis Cohen, Philadelphia. "Spontaneous Rupture of the Spleen in Spleno-Myelogenous Leukemia," Dr. A. McPhedran, Toronto. "The Dimethylamidobenzaldehyde Reaction of the Feces in Health and Disease," Dr. C. A. Herter, New York. "On the Conditions of Bacterial Activity in the Intestine in Cases of Advanced, Apparently Primary, Anemias," Dr. C. A. Herter, New York. "On the Antagonism between Alcohol and Carbolic Acid," Dr. A. E. Taylor, San Francisco.

The following members were elected: Active members: W. M. L. Coplin, S. W. Lambert and C. H. Weaver. Associate members: A. A. Eshner, R. G. Freeman, I. P. Lyon, M. J. Rosenau, John S. Billings, Jr., Edward R. Baldwin, Herbert C. Moffitt.

The following officers were elected: President, Dr. Francis P. Kinnicutt, New York; vice-president, Dr. James Tyson, Philadelphia; secretary, Dr. Henry Hun, Albany; recorder, Dr. Solis Cohen, Philadelphia; treasurer, Dr. J. P. C. Griffith, Philadelphia; member of council, Dr. L. F. Barker, Baltimore.

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Recent Literature.

Christianity and Sex Problems. By Hugh Northcote, M.A. Pp. ix, 257. Philadelphia: F. A. Davis Co. 1906.

This book presents a perfectly frank discussion of the relation of the sexes, and of the obvious abnormal conditions to which it gives rise. It is clearly written from the standpoint of the man with a mission, and no doubt will do its share of good in the hands of certain readers. We are inclined to think the teachings of Christianity on the subject might have been omitted. This does not tend to elucidate the knotty problem, as presented in this book, and in fact rather adds to its difficulty. The author has set himself the task of adjusting "the relations between science and Christian thought in the origin of sexual ethics." We must refer our readers to the book itself to determine how well he has succeeded.

Abdominal Operations. By G. A. Moynihan, M.S. (London), F.R.C.S., Leeds. Fully illustrated. Philadelphia and London: W. B. Saunders & Company. 1905.

This is a valuable book on the methods used by Mr. Moynihan in his abdominal operations. It is very personal, the author's style is direct, conspicuously clear, and the work gives a capital view of the writer's methods and experience. The author, besides giving his personal experience, has recorded the advances in abdominal surgery. He has, we think wisely, omitted from his book many operations that he regards as obsolete. His ideas regarding intestinal anastomosis in deliberately setting one side all mechanical appliances, such as buttons, etc., is, we believe, sound. He considers that all who do intestinal work should be familiar with the technic of rapid intestinal suturing.

The practical character of the book stands out most prominently. The illustrations are good, but the glazing of the half-tone plates is not pleasant to the eye. The book is one which every surgeon who does abdominal surgery will read with interest and will frequently turn to as a reference book.

Radio-Therapy in Skin Diseases. By Dr. J. Belot. Translated by W. Deane Butcher, M.R.C.S. London and New York: Rebman, Limited. 1905.

The appearance of this book of 445 pages indicates the importance that this method of treatment in skin diseases has so rapidly assumed. The work upon which this treatise was based was done at Doctor Brocq's clinique at the Hôpital Broca. The first part of the book deals with the technical and theoretical side of the subject, and the literature is very exhaustively cited. The writer then goes on to the consideration of all the various skin diseases that have been treated by this method, and there are very few diseases of which this cannot be said. In each instance, after a description of the results and theories of others, his own experience is chronicled. While not perhaps contributing any great advance to our knowledge of radio-therapy, the book is to be recommended as a careful compilation of our present knowledge of this subject, and as a valuable work of reference.

Gynecological Diagnosis. A Manual for Students and Practitioners. By Arthur E. Giles, M.D., B.Sc., London; F.R.C.S., Ed.; M.R.C.P., London. Gynecologist to the Tottenham Hospital; Surgeon to Out-Patients, Chelsea Hospital for Women. With thirty-five original illustrations. New York: William Wood & Company. 1906.

After reading this small volume of two hundred and twelve pages one is reminded of the remark of Sir Edward Elgar, the distinguished English composer, who, when interviewed in New York recently and asked as to the progress of music in England, said: "We live on an island, and some of us never get off it."

The amount of attention paid to the methods of passing the sound harks back to the first edition of that excellent textbook in its day, the first edition of Hart and Barbour's Gynecology, published in 1882. No mention is made of the need of asepsis in making the gynecological examination nor of the importance of placing the patient on a hard surface before making such an examination. The author is still harping on the necessity of making a physical investigation before pronouncing a diagnosis. Very likely such teaching is necessary in England; on this side of the water we passed that point a good many years ago.

The book approaches diagnosis in gynecology from the standpoint of the analysis and interpretation of symptoms and signs and illustrates well the swinging back of the pendulum from the tendency to employ exclusively instruments of precision, introduced into medicine of recent years. The author says in the introduction that it is " of the highest importance that the gynecologist should not view the whole body through a speculum, nor survey all abdominal troubles from the pelvic standpoint, — he must not forget everything except his gynecology." To this every reader will agree heartily. Not so the statement that " eliminating microscopic appearances gynecological diagnosis does not lend itself to extensive pictorial illustration." More time and thought might have been expended to advantage on the thirty-five original illustrations which he has given us.

The tables of differential diagnosis placed at the ends of the chapters of Part II, on the diagnosis of individual cases, are excellent and show the author to be a man of large practical experience. The book is well written and concise and is of value as calling attention to the need of a more careful observation of symptoms in gynecology.

Clinical Obstetrics. By Robert Jardine, M.D. (Edin.), M.R.C.S. (Eng.), F.F.P.S. (Glas.), F.R.S. (Edin.), Professor of Midwifery in St. Mungo's College, Glasgow; Senior Physician to the Glasgow Maternity Hospital; Examiner in Midwifery to the Scotch Conjoint Board; Late President of the Glasgow Obstetrical and Gynecological Society, etc. Second edition, with ninety-six illustrations and a colored plate. New York and London: Rebman Company. 1905.

This excellently printed and bound volume of 690 pages represents the author's thirteen years' experience as physician to the Glasgow Maternity Hospital. In addition to the forty-four chapters, into which the subject matter is divided, there is an appendix of twenty-five pages consisting of the statistics of thirty years' work in the indoor and outdoor departments of this hospital, shown in a series of tables and a painstaking personal analysis of them by Dr. Jardine.

The book is a plea for a rigid surgical asepsis in midwifery in Scotland. The illustrative case method is employed; some very unusual and interesting cases being described, and in this feature lies the chief value of the work. The author is a strong advocate of the injection of " saline " in many obstetric conditions; in fact, it is his sheet anchor of treatment. The language is in places a trifle quaint to American readers. For instance, on page 31, under the heading of nephritis is given an illustrative case of a primipara, single, aged twenty-four, eight months pregnant, who complained of vertigo, transient loss of vision and headache. There was marked edema of the legs and face and the urine was loaded with albumin. She was given directions for appropriate treatment, that she did not follow, and when she returned in labor all her symptoms were found to be aggravated. " Two pints of saline (1 dr. each of acetate and chloride of sodium to the pint) were infused under the breast, and she was put on a diuretic after delivery. The labor ended naturally. The albumin disappeared from the urine a few days after delivery. *It was a wonder that she did not take fits during labor.*"

Again, page 214, " The cause of delay during the first stage of labor may lie in " *the powers, the passages, or the passenger.*"

Although not abreast with the best of our American textbooks in the departments of pathology and aseptic technique this treatise contains many useful hints culled from an ample practical experience and should prove of value to the practitioner.

An Atlas of Human Anatomy for Students and Physicians. By Carl Toldt, M.D., Professor of Anatomy in the University of Vienna, assisted by Prof. Alois Dalla Rosa, M.D. Translated from the third German edition by M. Eden Paul, M.D. (Brux.), M.R.C.S., L.R.C.P. Sixth Section. G. Neurology. H. The Organs of Senses. London, New York: Rebman Company. 1904.

We have already commented on earlier sections of this notable atlas. This last volume of the series concerns itself with the anatomy of the nervous system and of the organs of the special senses. Except for certain general considerations on the constituent elements of the nervous system, the atlas is confined to the naked eye appearances. The illustrations are arranged as in other sections, with descriptive text in immediate connection with the pictured anatomical details, by all means the best method for quick reference. Without being unnecessarily elaborated the illustrations are entirely adequate to the end in view, namely, an accurate reproduction of dissections. The organs of special sense are treated in similar fashion. As an appendix, the translator has discussed at considerable length various matters relating to the nervous system, which should be of much value to the student. An excellent index completes this altogether notable work.

A Compend of Obstetrics. By Henry G. Landis, A.M., M.D., late Professor of Obstetrics and Diseases of Women in Starling Medical College. Revised and edited by William H. Wells, M.D., Demonstrator of Clinical Obstetrics in the Jefferson Medical College, Philadelphia; Gynecologist to the Mount Sinai Hospital, Philadelphia, etc. Eighth edition. Philadelphia: P. Blakiston's Son & Co. 1906.

This is a book of 227 pages, freely illustrated by numerous cuts in the text and by several full page half tones from recent editions of the textbooks of Edgar and Davis. A new feature of this eighth edition is an appendix of 28 pages of certain obstetric constants, containing chapters on anatomy and physiology; embryology; changes in position which the uterus undergoes during pregnancy; the size of the embryo at each month in centimeters; the causes of abortion; differential diagnosis between pregnancy and other tumors; synopsis of the mechanism of labor in the various positions and presentations, etc. The book is brought up to date and should maintain its previous popularity.

Consumption: Its Relation to Man and His Civilization; Its Prevention and Cure. By John Bessner Huber, A.M., M.D., Fellow of the New York Academy of Medicine; Member of the National Association for the Study and Prevention of Tuberculosis; Visiting Physician to St. Joseph's Hospital for Consumptives; Member of the Advisory Board, The New Mexico Cottage Sanatorium, etc. Pp. 536, with 131 illustrations. Philadelphia and London: J. B. Lippincott Company. 1906.

This is a comprehensive handbook on tuberculosis, systematically arranged in fifteen parts, each having several chapters, the volume closing with nine appendices. Every phase of this many-sided subject — its history and literature, its technical features, heredity and the effect of environment, the influence of races and peoples, occupations, habits and social customs, poverty, alcohol and the various sources of infection — is considered. The means of cure including American and European sanatoria, tuberculosis in public institutions, tenements, and the intricate municipal problems touching this disease are treated in a most interesting, artistic manner.

Any medical man or layman who has not yet done something toward promoting the study, prevention and cure of tuberculosis should read this book and his interest cannot fail to be aroused. Dr. Huber gives an excellent sketch of the organization and work of the National Association for the Study and Prevention of Tuberculosis and reprints the reports of the committees on early diagnosis and on the classification of cases and the technique of examinations. The work of the Department of Health of New York, especially with reference to sanitation and the inspection of milk, is described and warmly commended. Dr. Huber, in company with the best American and English investigators, believes in the identity of human and bovine tubercle and quotes from Ravenel's paper read at London in 1901 opposing Koch's dictum regarding their non-transmissibility. By the free use of illustrations the author arouses an immediate interest in his subject with which he shows an intimate personal and sympathetic knowledge.

Chemical and Microscopical Diagnosis. By Francis Carter Wood, M.D., Adjunct Professor of Clinical Pathology, Columbia University; Pathologist to St. Luke's Hospital, New York. With 188 illustrations and 9 colored plates. New York and London: D. Appleton & Co.

Reviews of mediocre works are so often written in glowing terms that in order to attract notice to a publication of unusual worth one is almost forced to use extravagant language. But in calling attention to Dr. Wood's textbook of clinical pathology words of high praise are justifiable. The American student of clinical microscopy need no longer turn to the foreign works of von Jaksch and Lenhartz in order to secure the best presentation of the subject. This opinion is based on a careful examination of the book and actual test of its value in the clinical laboratory. Interestingly written, in simple idiomatic English, it combines Germanic thoroughness with Gallic lucidity.

The volume is divided into nine parts. The first section deals with the blood and occupies 258 pages, and is more up to date than any manual of hematology, except Türk. The other divisions are devoted to the examination of the gastric contents, the feces, parasites, oral and nasal secretions, the sputum, the urine, transudates and exudates, and milk. Arranged in an appendix are descriptions of various technical procedures. Among the chapters of special merit are those devoted to the chemistry of the urine, functional efficiency of the kidneys and the examination of gastric contents. The value of the work is enhanced by a carefully selected bibliography. The illustrations are excellent. The author's desire to meet the needs of the practising physician is evident throughout.

First Aid in Illness and Injury. Comprised in a series of chapters on the Human Machine, its structure, its implements of repair, and the accidents and emergencies to which it is liable. By James Evelyn Pilcher, M.D., L.H.D., Major and Brigade Surgeon of United States Volunteers; Captain in the Medical Department of the United States Army; Secretary and Editor of the Association of Military Surgeons of the United States. Ninth edition, revised, with 208 illustrations. New York: Charles Scribner's Sons. 1905.

This admirable little book has reached its ninth edition. It now conveys much of the valuable information that was obtained from the military operations in the "Far East." Many new illustrations have been added to the book so that it may be considered to be thoroughly "up-to-date." The method of transporting the sick and wounded in use in the United States Army is given in sufficient detail to make it comprehensible. The book is well bound and of convenient size to serve as a manual.

A Textbook on the Practice of Gynecology. For Practitioners and Students. By William Easterly Ashton, M.D., LL.D., Fellow of the American Gynecological Society; Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. With ten hundred and forty-six new line drawings, illustrating the text, by John V. Alteneder. Second edition. Philadelphia and London: W. B. Saunders Company. 1906.

There are very few changes to be noted in this second edition published six months after the first; what there are consist of correction of typographical errors and slight changes in the illustrations. The number of pages remains as in the first edition, 1079. This volume merits the favorable comments which we made on it in our extended review of the first edition last August.

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THE CASE SYSTEM IN MEDICAL TEACHING.

The death of Prof. C. C. Langdell, which occurred July 6, again calls attention to the case method of medical teaching and the success which has attended its use during the past six years. It will be remembered that Professor Langdell, whose services to the Harvard Law School and to the study of law in general were manifold, accomplished his greatest results in reforming the teaching of law by the introduction of the so-called case system. Recognizing the law as capable of study by the scientific method, he attempted, and with almost immediate success, to introduce into the teaching actual cases for the students' consideration whereby they were enabled to search original sources and to arrive at conclusions through their own mental processes. The method forthwith became a recognized success, and much of the pre-eminence of the Harvard Law School unquestionably is due to the persistent use of this method in the training of the mind of the student in legal problems.

Aware of the success of the method in the teaching of law, Dr. W. B. Cannon, six years ago, then a student at the Harvard Medical School, conceived the idea of applying a similar method to medical teaching. Manifestly, the conditions were somewhat different. A student of law could not personally try cases at the bar during his student days. He was, therefore, unable to come into such immediate contact with the problems of his profession as the student of medicine, who, at least in a large city, has no dearth of actual patients whom he may personally observe and study. The method, therefore, could be applied to medicine only as an adjuvant of clinical work. As such Dr. Cannon thought it would prove of value, a supposition which has been amply justified by the experience of the six years which have intervened since his original publications on the subject.

In our issue of Jan. 11, 1900, Dr. Cannon published his first paper entitled, "The Case Method of Teaching Systematic Medicine." In this paper from the justly critical attitude of the student, he analyzed clinical instruction as ordinarily given as well as the didactic lecture and the recitation system, and advanced the proposition that the case method might be applied to medicine, and was in fact simply another application of the inductive method of teaching. Dr. Cannon again returned to the subject in a paper read before the Boston Society for Medical Improvement in March of the same year and published in our issue of May 31. At this meeting the general subject under discussion was, "Some Advances in Medical Instruction," and papers were read by Dr. W. T. Councilman, President C. W. Eliot, of Harvard University, Dr. H. L. Burrell, Dr. A. H. Wentworth, as well as by Dr. Cannon. The discussion brought out by this series of papers, and particularly by Dr. Cannon's, was of unusual interest. Dr. J. J. Putnam, Dr. R. C. Cabot, Dr. H. L. Burrell and others had already used the method in their teaching, and were prepared to give the results of personal experience, which was in every instance favorable to the method. Immediately thereafter the method became widely known throughout the country, and from that time to this has been used in greater or less degree at various institutions. It has unquestionably proved its intrinsic worth as a means of medical instruction. Experience has, however, shown that the method varies widely in value in the hands of different instructors. It requires on the part of the teacher concentration of attention on the main issue and a continually alert mind, if confusion is to be avoided. That the method in general, however, has met with success, certainly in this community, is shown by the fact that several books have been written detailing cases for the use of students. A case book in neurology by Drs. J. J. Putnam and G. A. Waterman has been in use for some years. The surgical department of the Harvard Medical School also makes use of such a book, and the latest addition is a case book by Dr. R. C. Cabot, very recently published, which has already had a wide circulation.

As we look back, therefore, over the period of years in which this method has been used, there can be no doubt that it has found for itself a definite place in medical education. It was received with a somewhat extraordinary degree of enthusiasm, which, although possibly somewhat exaggerated at the outset, has been shown not to have been misplaced. It was not to be expected that the method should have any such influence in medicine as in law, but as a means of training students' minds toward the solution of medical problems it has a perfectly distinct and, therefore, lasting worth.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

THE activity of scientific research in this country is well exemplified by the last volume of "Studies from the Rockefeller Institute for Medical Research." Twenty-four separate pieces of work are detailed in this, the fifth volume of the series on the most diverse subjects connected with scientific investigation in the medical field.

The most elaborate piece of work is that by Dr. W. R. Brinckerhoff and Dr. E. E. Tyzzer, on "Experimental Variola and Vaccinia in Quadrumana." This is a continuation of the work on smallpox which a few years ago received a definite stimulus from the researches of Dr. W. T. Councilman and his colleagues on the probable causative factor of the disease. This original work which demonstrated the probable cause of smallpox to be a protozoön was in one sense preliminary, inasmuch as experimental work was essential to elucidate many of the problems presented. This work was undertaken by Drs. Brinckerhoff and Tyzzer, of the Harvard Medical School, who were given the opportunity of prosecuting their researches in the government biological laboratory at Manila. The result of their elaborate investigations are given in the present study. Dr. W. T. Councilman writes an introduction to the article which admirably summarizes the present state of our knowledge and points out the lines in which future investigations should proceed. Dr. Councilman concludes his remarks with the following statement:

> "In our work on smallpox, which is now nearing its temporary conclusion, certain questions have presented themselves. These questions relate: First, to the parasite and its life history; second, to the inter-relationship of vaccinia, variola inoculata and variola vera; third, to the immunity and its mode of production; fourth, to the mode of production of the exanthem; fifth, to the mode of infection in variola vera. In our work, both in Boston and Manila, we feel that we have made some contributions to all these questions. None of them are completely answered. Their answers involve long and arduous work by skilled investigators on both vaccinia, variola in man, and the experimental disease in monkeys. For the work a constant supply of virus and of animals for experiment is necessary, and we believe that the work can only be carried out in places where both these conditions can be fulfilled. The most important contribution which could at present be made would be the discovery of an animal susceptible to infection by exposure to variola vera."

The details of the investigation carried on by Drs. Brinckerhoff and Tyzzer at Manila and at the Harvard Medical School are given. Inoculations of the disease in monkeys produced interesting results which throw much light on the condition as it occurs in man. The conclusion was reached that, although variola inoculata in a monkey differs from that in a man, yet it is as distinct a clinical entity. It was found that the orang-outan, one of the higher apes, was susceptible to variola inoculata and that the primary lesion in this animal stands closer to the cutaneous lesion in man in certain definite respects than is the case with the monkey. Although no absolutely positive conclusions were reached, the work tends to show the desirability of further investigation along the same line. As a piece of painstaking experimental work these researches of Drs. Brinckerhoff and Tyzzer must take a high place.

To this issue of the studies from the Rockefeller Institute Dr. J. H. Pratt, of Boston, contributes an important paper on the various methods employed for enumerating blood platelets. He shows that there are many sources of error in methods which have heretofore been used, and offers one of his own as a substitute which in his hands has given good results. Dr. Flexner presents an important research on "The Constituent of the Bile Causing Pancreatitis and the Effect of Colloids upon Its Action," and Dr. Hideyo Noguchi continues his work upon snake venom.

In general, this volume of researches must stand as a still further argument, if argument were needed, in favor of the type of institution which the Rockefeller Institute represents. The investigators are untrammeled by the time-taking task of teaching, and the concentration of effort which this means cannot fail to show itself both in the character and amount of work produced. The scientific world has come to look forward to these periodic publications; the influence of the Institute can hardly fail to grow with the years.

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ENLARGEMENT OF THE HARVARD MEDICAL SCHOOL FACULTY.

As already announced, the Harvard Medical School Faculty has recently enlarged its number by the addition of twelve members for a term of three years. Those who are taken into the faculty by this provision retain the title of instructor. Hitherto the faculty has been composed only of professors, associate professors, assistant professors, and others appointed for an indeterminate number of years. The present regulation makes possible the admission of instructors, a plan which has been adopted with success in other departments of the university. The object of this change is to bring into relation with the governing body of the Medical School younger men whose counsel may add something to the efficiency of the teaching. Under the ordinary system of promotions it is evident that, particularly in certain departments of practical medicine, young men could only exceptionally find a place in the faculty, a situation which the faculty, we think with wisdom, has seen fit to obviate by admitting men of lower academic grade than has hitherto been the custom. That this will ultimately result in benefit to the school is not open to question.

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MEDICAL NOTES.

Appointment of Professor Chiari. — It is announced that Prof. Hans Chiari, long associated with the University of Prague, is to succeed Professor von Recklinghausen in the chair of pathology at Strasburg.

Investigation Regarding Cholera Serum.— It is announced that Dr. Denier, of Paris, is about to take up the work of Drs. Roux and Salimbeni, of the Pasteur Institute, regarding the serum treatment of cholera. The experimentation is to be carried on in the Far East.

Yellow Fever Prophylaxis in New Orleans. — The nineteenth memoir of the Liverpool School of Tropical Medicine concerns itself with yellow fever prophylaxis in New Orleans during the summer of 1905. The monograph is written by Mr. Rubert Boyce and gives an exhaustive account of the means which the inhabitants of the city took to stamp out the fever. As an epitome of that somewhat notable campaign against yellow fever the contribution should be of much value. It is amply illustrated, and no doubt provides the most complete and accurate account of the epidemic which is likely to reach the medical public.

Honorary Degrees.— Among the recipients of honorary degrees this year in the medical profession are Prof. Henry H. Donaldson, of the Department of Neurology, Wistar Institute of Anatomy at the University of Pennsylvania, who received the degree of Doctor of Science from Yale. The same university also conferred the degree of Doctor of Laws on Dr. Francis Bacon, Professor of Surgery in the Yale Medical School, and on Dr. W. W. Keen, Professor of Surgery at the Jefferson Medical College.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, July 11, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 31, scarlatina 22, typhoid fever 8, measles 52, tuberculosis 40, smallpox 0.

The death-rate of the reported deaths for the week ending July 11, 1906, was 15.33.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, July 7, 1906, was 168, against 183 the corresponding week of last year, showing a decrease of 15 deaths and making the death-rate for the week 14.55. Of this number 94 were males and 74 were females; 158 were white and 10 colored; 96 were born in the United States, 66 in foreign countries and 6 unknown; 33 were of American parentage, 112 of foreign parentage and 23 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 28 cases and 2 deaths; scarlatina, 13 cases and no deaths; typhoid fever, 7 cases and 1 death; measles, 46 cases and 1 death; tuberculosis, 37 cases and 17 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 9, whooping cough 3, heart disease 16, bronchitis 2 and marasmus 3. There were 13 deaths from violent causes. The number of children who died under one year was 35; the number under five years 49. The number of persons who died over sixty years of age was 32. The deaths in public institutions were 57.

There were 4 cases and 4 deaths reported from cerebrospinal meningitis during the week.

The Boston Floating Hospital. — The Board of Trustees announce the opening of the season of 1906, on Wednesday, July 11. Trips down the harbor will be made daily, including Sundays (weather permitting), from July 11 to a date in September, to be determined later. The daily trips will be made from the pier at North End Park, Commercial Street, Boston, the Hospital leaving at 9 A.M., and returning about 4 P.M. Patients for the day trips only should apply at the pier between 8 and 8.45 A.M. on the day of the trip. Permanent patients should apply at the pier at any time between 5 o'clock in the evening and 8.45 in the morning. Admission cards may be obtained from physicians of either school, from district nurses, from agents of the Associated Charities, from the various dispensaries and hospitals, or at the office of the Boston Floating Hospital. Except in cases of emergency admission cards must be signed by the physician attending the child. Children with contagious diseases are not admitted.

Report of the Adams Nervine Asylum. — The report of the Adams Nervine Asylum for the year ending May, 1906, demonstrates the continued usefulness of this somewhat unique institution. The number of patients under treatment during the year was 187 (37 men and 150 women). Of these, 43 (11 men and 32 women) were in the Asylum May 1, 1905, and 144 (26 men and 118 women) were admitted during the year. There were discharged as recovered, 12; relieved, 96; not relieved, 30. One patient died, and 48 (11 men and 37 women) were remaining in the Asylum April 30, 1906. The daily average number of patients was 44.52 (men, 10.56; women, 33.96). Of the 187 patients under treatment during the year, 65 were free, 63 paid $25 or more per week, and 59 paid from $1 to $20 per week. The average cost per week for each patient, including all payments charged to current expenses, was $21.63. The amount received from patients was about 35% of the expenses. The amount received from male patients was $1,820.07. One new building has been erected and furnished to be named the Davis House in memory of Mr. James C. Davis, long associated with the management of the institution.

NEW YORK.

Post-Graduate School and Hospital. The directors of the New York Post-Graduate Medical School and Hospital, which was the first institution in the country to provide systematic courses of post-graduate instruction in all departments of medicine and surgery, have just issued their annual report. During the past year 561 physicians took one or more of the courses, and in the twenty-four years of the school's existence there have been 10,666 matriculates.

Recovery from Fractured Skull and Spine. — George Knox, a New York merchant, born in the north of Ireland, who forty-six years ago broke his neck and fractured his skull, died on June 28, in his ninety-first year, surviving by many years the noted surgeons who attended him at the time he met with his accident. This occurred in the summer of 1860, a heavy cornice falling upon his head from a building in course of erection, which he was passing. Dr. Bumstead, who was called to attend him, declared that he could not live twenty-four hours, but at the end of a week was astonished to find that he was not only living, but gaining in strength. The patient was seen by Dr. Willard Parker and other eminent surgeons of the day, and the remarkable feature of the case was that no part of the body was paralyzed. Mr. Knox was treated for two years at St. Luke's Hospital, and at the end of that time was able to return to his business, although it is stated that the fracture of the cervical vertebræ never united. He successfully conducted his business until 1886, when he retired.

Mortality in June. — The weekly reports of the Health Department show that during the month of June the mortality in the city represented an annual death-rate of 15.87, as against 18.53 in May, and 16.91 in June, 1905. This is certainly a very gratifying fall in the death-rate, which is now exceptionally low for the season. The corrected death-rate, excluding non-residents and infants under one week old, is 15.05. Among the diseases which show a decline in fatality are the following: The weekly average of deaths from typhoid fever decreased from 7 in May, to 5 in June; the weekly average of deaths from measles, from 35.50 to 24; from scarlet fever, from 26.25 to 6.75; from whooping-cough from 5.50 to 2.50; from diphtheria and croup, from 47.75 to 24.75; from influenza, from 4 to 1; from epidemic cerebrospinal meningitis, from 26.25 to 15.75; from pulmonary tuberculosis, from 177.25 to 169; from acute bronchitis, from 22.50 to 15.50; from pneumonia, from 114.25 to 68.50; from broncho-pneumonia, from 109.50 to 77; from organic heart diseases, from 101.25 to 89.50; and from Bright's disease and nephritis, from 121.75 to 101.25. Almost the only increase was in diarrheal diseases, which, of course, is to be expected at this time of the year. The weekly average from these increased from 55.50 to 105.75. Of these, the weekly average of deaths in children under five years of age increased from 48.25 to 98.75. In June there were no deaths from smallpox as against five deaths in May.

Hospital for Treatment of Bone and Glandular Tuberculosis. — Ever since its successful experiment with a small hospital at the seashore for the treatment of bone and glandular tuberculosis, the New York Association for the Improvement of the Condition of the Poor has had in contemplation the establishment of a large permanent institution of this character. John D. Rockefeller became interested in the project, and some time ago offered to give the sum of $125,000 for the purpose, on condition that a like amount was subscribed by others by June 1, 1906. Afterwards the time was extended to July 1, but up to within a couple of days of that date there was still lacking about $22,000 to secure the Rockefeller gift. A special appeal was then made to the public, with the result that $20,000 was subscribed by one generous donor, who requested that his name should not be made known, and the remainder of the $125,000 was secured in smaller subscriptions within the prescribed time. It is expected that the city will provide a suitable seaside site for the new institution, and it is the hope of the association that this movement will eventually lead to the establishment of a chain of such hospitals all along the Altantic coast.

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Miscellany.

PAYING PATIENTS IN HOSPITALS.

Professor Osler, in the course of an address delivered at the prize giving at St. Thomas's Hospital on June 27, observed that there was one feature about the hospital that interested him particularly, and that was the admission of a certain number of paying patients. These patients came from a class of people in moderate circumstances, and he thought the plan of providing medical attendance in this manner for such persons was an excellent one. He said there was no need to plead for what he termed "the rich poor," for the poor were indeed rich in regard to hospitals. He advanced the claims of "the poor rich" who supported the hospitals, but who were poor inasmuch as they did not get as much out of the hospitals as they ought. There was no place where a sick man could receive the same care and nursing and after attention in operation cases as in a large hospital. Further, paying wards for the rich would prove a source of income for the hospitals. He added that he had had large experience in regard to that matter in connection with the Johns Hopkins Hospital, with which he had been connected for seventeen years. The work in the paying wards was interesting from a clinical standpoint, and it was, he said, "delightful" to see well-to-do people coming for treatment in hospitals with paying wards in the United States. He commented on the rapid development at St. Thomas's Hospital of the clinical laboratories and the active extension of research work, because in that way alone would hospitals contribute towards the progress of medicine. Professor Osler proceeded to quote from a letter written by a layman on the subject of scientific research. It was a matter of regret that that branch of study met with limited acceptance, and only too often its upholders were visited with contumely that was often shared by the institutions with which they were connected. Hospital efficiency should be raised a stage higher by calling in the aid of that form of laboratory investigation which made science its servant, and which was guided not only by sympathy with humanity, but also by intellect, remembering that a hospital existed for the prevention of disease as well as for the relief of the sick. Referring to the work of Pasteur and others Professor Osler declared that what had been discovered was nothing to what might be done in the future. In the past science wandered in a maze struggling with disease, but now it was engaged in the prevention of disease. The professor concluded his address by warning the students against wasting valuable time, and urged them to learn the French and German languages. — *British Medical Journal.*

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LOW INFANTILE DEATH-RATE IN LE CREUSOT, AND ITS CAUSES.

According to the *Monthly Bulletin of the Massachusetts State Board of Health*, in the iron manufacturing city of Le Creusot, France, the great majority of the 32,000 inhabitants belong to the families of laborers in the iron works. Between 1893 and 1902, 8,054 births were registered; the number of deaths of infants under one year of age amounted to 891, the total mortality of the town being 5,375. Thus, the infantile mortality amounted to a little over 11%, while that of France as a whole during the same decade was 16%, and in certain manufacturing and industrial centers it was far higher. This is a most unusually low infantile death-rate, especially for a manufacturing community.

According to the *British Medical Journal*, the results in Le Creusot have followed certain reforms instituted about twelve years ago by the Messrs. Schneider, who have encouraged improvements in the hygiene of the town, especially in the workmen's quarters; a judicious raising of salaries of workwomen, so as to allow of their fulfilling the duties of maternity in comfort; and, thirdly, the establishment of a system of efficient medical assistance. Women are not allowed to work beyond the fifth month of pregnancy nor to return to their work without certificate that they may do so without injury to themselves or to their offspring. The proportion of artificially fed infants is less than 20%.

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Correspondence.

LETTER FROM PARIS.

A LIVELY DISCUSSION ON APPENDICITIS; DIEULAFOY; RECLUS; RICHELOT; LA DENTU; DURET. THE GASTRO-INTESTINAL TRACT, IN GENERAL, AN OBJECT OF INTEREST. THE ATMOSPHERE OF PARIS. BALLOONING AS A CURE.

(*From Our Special Correspondent.*)

PARIS, June 30, 1906.

Mr. Editor: During the last four weeks a very lively discussion has been carried on here at the Academy of Medicine concerning errors in diagnosis of and operations for appendicitis. It was practically a renewal of a fierce discussion in 1897, nearly ten years ago, when much the same subjects were supposed to have been pretty thoroughly thrashed out.

The matter was started by Professor Dieulafoy, who opened a long statement by declaring at the session held May 29 that he "was much impressed by the '*quantity*' of people who, having simply a muco-membranous typhlocolitis, are improperly operated on for an appendicitis which they have not got."

He proceeded to declare that, although one of the earliest and most enthusiastic advocates of surgical intervention in the treatment of appendicitis, at present when he saw the quantity of operations done for appendicitis which do not exist, when he saw the great number of people condemned to have their abdomen opened on account of an error in diagnosis, he is much disturbed and thinks it his duty to again bring the subject before the tribunal of the Academy. A muco-membranous colitis affecting the cecum is too liable to be operated on for an appendicitis. Such errors in diagnosis followed by errors in operation have enormously increased in recent years, especially since the custom has arisen of relying upon histological examinations for the confirmatory diagnosis of appendicitis.

Dieulafoy expressed the opinion that a typhlocolitis is rarely complicated by an appendicitis, and that the contrary view is responsible for a "quantity" of people going about with unnecessary scars upon their abdomens. Such people he entitles "*les balafrés.*"

This rather sensational and theatrical opening of the subject by Dieulafoy was followed at the next session of the Academy, June 5, by a vigorous rebuttal by Professor Reclus, who spoke warmly from the surgical point of view. As to the important question of the relation of muco-membranous typhlocolitis to appendicitis, Reclus regards it as long ago settled that there is a close relationship between appendicitis and all forms of enteritis, that these pathological processes are not arrested by the insufficient little valve of Gerlach. Too frequently they invade the appendix and take up their abode in that disastrous organ — the cecum of a cecum, the diverticulum of a diverticulum, the cul-de-sac of a cul-de-sac, a blind internal fistula which seems to have been solely created in order to increase the virulence of germs.

It will be observed that, although the subject was a serious one and the audience a dignified one, the debate was brisk and lively and the language sufficiently picturesque; in fact, in his reply, June 19, Dieulafoy refers to Reclus' statements as having been made in a rather "nervous tone." He continued to express his disdain for that false appendicitis, *clinically* non-existent, which he ironically calls an "appendicitis microscopic" or an appendicitis of the microscope. Then turning to his surgical colleagues he addressed them as follows: "Permit me to tell you that you are in a poor position to judge the relation of appendicitis to typhlocolitis. You see only the surgical side of this question and the medical side escapes you almost entirely. You operate for an appendicitis on some individual subject to an entero-colitis, and you conclude that appendicitis is the frequent consequence of entero-colitis. That is your mistake. One can cite to you hundreds of patients subject to muco-membranous typhlocolitis, who have been under observation by their medical attendants for many years and who are never attacked by appendicitis."

In some very temperate and reasonable remarks at the session of June 5 Richelot, an excellent surgeon, agreed with Dieulafoy that in recent years many people have been operated on for appendicitis who did not have it. But he disagrees in maintaining that appendicitis, in his own opinion, is always of intestinal origin, and he considers it a mistake to limit such a discussion to the muco-membranous colitis and its congeners alone.

At the last session, June 26, Reclus, who had been accused by Dieulafoy of a nervous speech, announced his agreement that to-day there is too much operating on everything; on ovaries, on tubes, on breasts, on the uterus, etc., and that the iliac fossa comes in for its share of this excess.

A discussion, even on this much worn subject, by a number of the most prominent men here, physicians and surgeons, which occupied the Academy for several sessions (four) is worthy of record. The general public, among whom there certainly is a considerable percentage of "*balafrés*," has unnaturally been a good deal interested, and must be once more not a little puzzled and perplexed where such doctors disagree.

Among the sensible professional men whom I meet it seems to be the opinion that Dieulafoy was rather too sensational, that there was too much play to the gallery; that Richelot's presentation of the subject was a sensible and moderate one, and that the fear expressed by him that Dieulafoy's exaggerated statements might cause many true appendicites to remain unoperated is not unfounded.

But of the appendix your readers, even before this, have probably had more than enough. Whether "*balafrés*" or not, should they come here, especially if knowing their Paris, I think they will be struck by the effect which all the intimate discussions of the abdominal organs has had upon the public mind. "*L'estomac*" is much considered and freely conversed about. The fashionable world is much more careful than formerly about what it eats and drinks and dieting is fashionable. The restaurants have occasion to notice the change. Rich sauces and many courses are less in demand. At one of the theatres the whole of the first act of a successful play is at a watering place, where the doctor is ordering every frequenter, whether fat or thin, young or old, male or female, to walk so many hours a day, to eat very little, and to drink so many glasses of water. The whole of the stage, except the part given to the "sauces" is taken up with these peripatetic patients all talking about "*l'estomac*," which is not even disguised, as in Barrie's play, under the name of "Little Mary."

People have not been used to coming to Paris for pure water, and now one must say to them don't come for pure air. The streets are not cleaned as they formerly were, and they are crowded with traffic, and the multiple motors grind everything — dirt, dust and droppings — into a fine powder and whirl it up about the respiratory passages. The condition is no worse than in New York and not much worse than in London, but it is grievous for everything except laryngologists and rhinologists.

Spending twenty-four hours "up in a balloon" is now suggested as a relief for this and most other ills which afflict us here below. I send you the following statement of this new "society cure":

"Ballooning, it is said, promises relief to the overworked society mind, to the nerve-racked devotees of fashion, to the tired neurotic, to the victim of brain-fag and nervous exhaustion. And, withal, it is the speediest cure yet devised. For in a single excursion to the clouds more good will be wrought to the patient than a fortnight's sojourn by the sea could effect. One can, therefore, indulge in the new cure, without inconvenience, in the very height of the season; be absent, in fact, but one day from the terrestrial scheme."

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RECORD OF MORTALITY

For the Week ending Saturday, June 30, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,362	492	Quincy	7	2
Chicago	476	140	Waltham	10	2
Philadelphia	503	194	Gloucester	9	2
St. Louis	—	—	Pittsfield	—	—
Baltimore	178	71	Brookline	3	1
Cleveland	—	—	North Adams	4	2
Buffalo	—	—	Chicopee	7	5
Pittsburg	—	—	Northampton	5	1
Cincinnati	—	—	Medford	3	2
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Hyde Park	3	—
Providence	55	22	Newburyport	1	—
Boston	173	38	Leominster	—	
Worcester	28	4	Melrose	5	0
Fall River	42	17	Woburn	5	2
Cambridge	24	8	Marlborough	1	0
Lowell	29	9	Westfield	3	—
Lynn	22	2	Peabody	—	—
New Bedford	23	8	Revere	6	—
Springfield	23	6	Clinton	3	1
Lawrence	11	6	Attleboro	1	0
Somerville	20	5	Adams	4	1
Holyoke	13	6	Gardner	—	—
Brockton	11	—	Milford	4	3
Malden	4	—	Weymouth	2	—
Salem	12	5	Framingham	2	
Chelsea	12	5	Watertown	0	—
Haverhill	8	1	Plymouth	—	—
Newton	7	2	Southbridge	5	—
Fitchburg	5	1	Wakefield	3	—
Taunton	—	—	Webster	—	—
Everett	4	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 27, 1906.

Woodward, R. M., surgeon. Detailed as member of of Revenue-Cutter Service retiring board, to be convened at Boston, Mass., June 28, 1906. June 21, 1906.

Grubbs, S. B., passed assistant surgeon. Granted leave of absence for fourteen days from Aug. 2, 1906. June 25, 1906.

King, W. W., passed assistant surgeon. Relieved from special temporary duty at Missoula, Mont., and directed to rejoin station in Washington, D. C. June 22, 1906.

McClintic, T. B., passed assistant surgeon. Directed to report to the commanding officer of the Revenue-Cutter "McCulloch" for special cruise in Alaskan waters. June 21, 1906.

McCoy, George W., passed assistant surgeon. Leave of absence granted Passed Assistant Surgeon McCoy for one month from April 14, 1906, amended to read twenty-five days only. June 25, 1906.

Warren, B. S., passed assistant surgeon. Granted leave of absence for four days from June 22, 1906, under paragraph 191 of the regulations.

Warren, B. S., passed assistant surgeon. Detailed as member of Revenue-Cutter Service retiring board, to be convened at Boston, Mass., June 28, 1906. June 21, 1906.

Collins, Geo. L., assistant surgeon. Granted extension of leave of absence for two days from June 28, 1906. June 27, 1906.

Foster, S. B., acting assistant surgeon. Granted leave of absence for ten days from June 11, 1906. June 23, 1906.

Goddard, F. L., acting assistant surgeon. Granted leave of absence for thirty days from June 20, 1906. June 22, 1906.

Houghton, M. W., acting assistant surgeon. Granted leave of absence for eleven days from June 20, 1906. June 22, 1906.

Owen, Henry, acting assistant surgeon. Leave of absence granted Acting Assistant Surgeon Owen for thirty days from May 25, 1906, amended to be effective June 10, 1906. June 26, 1906.

Walker, R. T., acting assistant surgeon. Granted leave of absence for four days from July 11, 1906. June 26, 1906.

Brown, F. L., pharmacist. Granted leave of absence for two days from June 23, 1906, under paragraph 210 of the regulations.

BOARDS CONVENED.

A board of medical officers was convened to meet at the Bureau, Monday, June 25, 1906, for the purpose of making physical examinations of candidates for the position of Second Assistant Engineer in the Revenue-Cutter Service. Detail for the board: Assistant Surgeon-General J. M. Eager, chairman; Assistant Surgeon J. W. Trask, recorder.

A board of officers was convened to meet at the Hygienic Laboratory, July 2, 1906, for the purpose of making an investigation as to the origin and prevalence of typhoid fever in the District of Columbia. Detail for the board: Passed Assistant Surgeon M. J. Rosenau, chairman; Passed Assistant Surgeon L. L. Lumsden, and Dr. J. H. Kastle, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JULY 7, 1906.

P. S. Rossiter, assistant surgeon. Ordered to the Naval Academy.

J. W. Backus, assistant surgeon. Ordered to the "Franklin."

P. E. Garrison, assistant surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

W. H. Rennie, assistant surgeon. Ordered to the "Lancaster," July 12.

C. E. Ryder, assistant surgeon. Ordered to the Navy Yard, Boston, Mass.

SOCIETY NOTICE.

The American Roentgen Ray Society. —The seventh annual meeting of the American Roentgen Ray Society will be held Aug. 28, 30, 31, 1906, at the Cataract and International hotels, Niagara Falls, N. Y.

RECENT DEATH.

Dr. Palmer C. Cole, of New York, died suddenly on July 3. He was born at Claverack on the Hudson, in 1835, and was graduated from Harvard Medical College in 1858. During the Civil War he served as a surgeon in the Federal Army. He had practised in New York for many years, and he was the first president of the New York Harvard Alumni Association.

BOOKS AND PAMPHLETS RECEIVED.

Gastric Surgery, being the Hunterian Lectures delivered before the Royal College of Surgeons of England, on Feb. 19, 21 and 23, 1906. By Herbert J. Paterson, M.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.) Illustrated. New York: William Wood & Co. 1906.

The Nature and Treatment of Cancer. (Some Methods of Hypodermic Medication in the Treatment of Inoperable Cancer.) By John A. Shaw-Mackenzie, M.D. Lond. Third edition, revised and enlarged. New York: William Wood & Co. 1906.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. viii, No. 2. June 1, 1906. Philadelphia and New York: Lea Bros. & Co.

Fifth Annual Report of the Metropolitan Water and Sewerage Board. Jan. 1, 1906. Boston.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. v. 1906.

The Eye and Nervous System. Their Diagnostic Relations by Various Authors. Edited by William Campbell Posey, A.B., M.D., and William G. Spiller, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1906.

Heart Disease and Aneurysm of the Aorta with Special Reference to Prognosis and Treatment. By Sir William H. Broadbent, Bart., K.C.V.O., M.D. Lond., F.R.S.D.Sc. Leeds, LL.D. Edin. and St. Andrew's, F.R.C.P., and John F. H. Broadbent, M.A., M.D. (Oxon.), F.R.C.P. Fourth edition. Illustrated. New York: William Wood & Co. 1906.

New Serum-Therapy. By D. Montgomerie Paton, L.R.C.S. and L.R.C.P. Ed. New York: William Wood & Co. 1906.

A Nurse's Hand-Book of Medicine. By J. Norman Henry, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1906.

A Case of Heteroplastic Ovarian Grafting, Followed by Pregnancy, and the Delivery of a Living Child. By Robert T. Morris, M.D.

Zur Würdigung der Bottinischen Operation im Verhältnis zur Prostatectomie, mit einer Statistik über 152 eigene Bottinische Operationen. Von Dr. Albert Freudenberg. Reprint.

Intramuscular Injections in the Treatment of Syphilis and the Use of the Sozoiodolate of Mercury. By Alexander Garceau, M.D. Reprint.

Original Articles.

MEDICAL DEPARTMENT OF THE JAPANESE ARMY.

BY MAJOR CHARLES LYNCH, M.D.,
General Staff, United States Army.

I HAVE come here to-night to tell you something of the medical department of that excellent organization, the Japanese army, as observed in the recent great war in the Far East. As some of you know, I was detailed in November, 1904, as military attaché to the American Legation, Tokyo, Japan, for the purpose of accompanying the Japanese army, operating in the field, with special instructions, directing me to investigate all matters in connection with the medical department. I was with the Japanese for about eleven months and, during that time, spent between seven and eight months in Manchuria, at the front with the Second Army, that of General Oku, leaving it on the declaration of peace in September, 1905. My few weeks in Japan were devoted to study of the administration of the medical department and to inspection of the home hospitals. On my way to and from the front, I had good opportunities to investigate matters on the lines of communication. I was also in Port Arthur, going there for a few days' visit a little over a month after it fell into the hands of the Japanese.

The organization of the medical department of any army is complex, and to describe it and to analyze the results accomplished by it in a great war, such as the one between Russia and Japan, takes many words in the telling. Appreciating this, I have been considerably at a loss as to how I could best fulfill my duties toward you in the limited time at our disposal this evening. The plan I have finally adopted will be to give, first, a very brief statement of pertinent facts in reference to the general organization of the army and a description of the country where the military operations were conducted, so that no confusion or misapprehension will occur when I reach the discussion of matters of special interest to us as physicians and medical officers, and then to take up at length those points, where medical departments of armies have met their greatest difficulties in the past, and other subjects of such great importance that they cannot well be omitted, telling what the Japanese did, the results attained by them in each particular and why, in my opinion, they were successful or unsuccessful.

Having defined the limits of my paper, I will now discuss the general organization of the Japanese army. For her military forces, Japan depends entirely on her national army, which has both an active and a reserve list. Officers, as a rule, stay in the active army for a long time, but soldiers who are raised by conscription yearly only remain three years, at the end of which period they pass into the reserve, being then available for service for a number of years. In the active army, thorough training is given the personnel; after officers and men enter the reserve, their military efficiency is maintained by maneuvers to which they are called at stated intervals. The Japanese have a Ministry of War, with several bureaus, of which the medical is one. The War Minister regulates the affairs of his own department in much the same way as in other countries. In addition, there is a General Staff which reports directly to the Emperor. In peace, this is mainly concerned with preparation of plans for campaigns and, in war, practically merges itself into Imperial Headquarters, which conducts the war. Japan is divided into thirteen division districts, the headquarters of each of which is in a different place, except that two, the Guards and the First, are in Tokyo. The division organization at home is maintained in war as well as in peace, a division headquarters immediately replacing one that has gone to engage in active service. This new division is called literally "the division replacing the division which has gone to the front." It is important to remember this, as the unit of organization in Japan is the division, the one at home serving as the depot of the one whose place it has taken, most supplies being divisional, the records of officers and soldiers being kept at the home division, all sick and wounded being returned to it, and all, on recovery, being sent to the front through it. When war occurs, the territory between the armies at the front and Japan must be bridged in some way, and this is provided for by the establishment of a line of communication organization, which is under Imperial Headquarters, Marshal Yamagata, chief of the General Staff, having been the Chief Inspector of the Lines of Communication in the recent war. Under him was the Liao-Tung garrison, which, with the advance of the armies, was gradually extended further north, and the lines of communication of each separate army, each with its own inspector. Thus, as far as possible, the commanders at the front were relieved of the care incident to superintending the lines of communication. For service at the front, the divisions, each of which comprised about 20,000 officers and men, were united to form armies, the usual organization for an army being three divisions, but this was not absolute; for instance, in the battle of Mukden, the Second Army had four divisions and at least one of the others only two, nor were the divisions which composed an army always the same. The Japanese have no quartermaster's department; the Intendance Department assumes the duties of pay, subsistence and construction, making all disbursements of public money; and a separate department, that of transportation and communications, with a large staff of detailed line officers, performs all functions in reference to the transportation of men and material. That the general organization proved a good one in the recent war does not admit of doubt. The divisions were able to take the field immediately, fully equipped from their own stores. They were at once transported to Manchuria, subsidized ships having been turned over to the government as soon as the demand was made for them, and, throughout the war, men and material were sent to Manchuria with clocklike precision, and the wounded and sick were promptly returned from there and ultimately reached their own divisions.

The Japanese proved themselves masters of secrecy by the success which they attained in concealing the strength of their military forces engaged in the recent war. It is generally supposed that they had fifteen divisions at the battle of Mukden, to which the second reserves brigades, the "Kobi," etc., must be added to find the total strength, which was probably over 300,000 fighting men. At the end of the contest, the number of divisions had been increased to about twenty, — these, the "Kobi," the depot divisions at home and non-divisional troops probably made a force of 700,000 men, mobilized. Divisions, in addition to the original thirteen, were supposedly formed by uniting organizations from the various division districts. All existent organizations had "death holes," as the Japanese call them, filled promptly, and new organizations would not have been put in the field if the Japanese authorities had considered that the old ones, at full strength, would prove sufficient for the work in hand.

As no attachés were permitted to accompany the Japanese forces in northern Korea or Sagalien, it is only possible for us to take into consideration the field of operations in Manchuria. The Japanese first landed at various points on the coast of that country, sending one army to the south to beseige Port Arthur and others to the north to attack the Russian forces commanded by General Kuropatkin and, later, by General Linevitch. As soon as the Japanese captured Dalny and Yingkow, these ports were made their Manchurian bases, to which soldiers and supplies came from Japan, and from which they were sent to the front. Dalny, after its capture, was always their principal Manchurian port under its new name, Tairen. The Manchurian railway led north from Dalny, with a branch to Port Arthur and another to Yingkow. The main line passed through Tashichiao, near Haicheng, Liao-Yang, Mukden, and through Tehling, on its way to Siberia. As it fell into the hands of the Japanese, they were compelled to change its wide gage to their narrow one. The country near Dalny is much broken, while, further north, wide, flat plains are found, of wonderful richness for agricultural purposes, on which the Chinese inhabitants raise large crops of kaulyang (sorghum), beans, poppies for opium, tobacco, etc. Still further north, twenty or thirty miles beyond Tehling, mountains, or rather broken foothills, are again encountered, which are not so rich. There are some large towns in Manchuria, notably Liao-Yang and Mukden, but the majority of the population is gathered into small villages, from which the inhabitants go out to till the fields in the vicinity. The ground, over which the battle of Mukden was fought, was very flat, though it was somewhat broken here and there by sand dunes and Chinese graves, and by streams which had cut deeply into the alluvial soil, so that their banks afforded good shelter from fire, for which purpose they were extensively used, as were also the mud walls of the Chinese villages. The climate of Manchuria is hot for a short time in summer, when it is also wet. In winter, the temperature falls as low as fifteen below zero, F., in the south, but as the humidity is low, this is not very severely felt, except when there is a wind, which is not a common occurrence near Mukden, at this season, though, in the vicinity of Dalny, there are frequent bitter gales. In the wet summer, the roads are almost impassable for wheeled vehicles at times, as the Chinese have been too busy during some hundreds of years to build them, though the Chinaman is perfectly practical here as elsewhere, as he needs no roads in summer, being occupied in tilling his fields, and in winter, when he hauls his produce to market, nature makes excellent highways over the whole country. The thousands of Chinese carts in Manchuria proved of the greatest possible value to the Japanese, who employed them freely in supplying their long line, which, it should be remembered, at the end of the war, extended some forty miles north of Tehling, from the Mongolian border on the west at least seventy-five miles to the east. During the wet weather, in the summer of 1905, the energies of the Japanese were taxed to the utmost in furnishing this widespread army with material and food.

So much for the general organization and terrain, which I will now leave to pass to the consideration of questions of more importance to the medical department, beginning with the methods pursued by the Japanese to provide medical personnel for war. No country, no matter how rich and how anxious to give her soldiers good care in time of war, can afford to maintain in peace, under full pay, a medical department personnel of officers and men commensurate with her greatly increased needs in war. Yet proof is not lacking that, in war, even exceptionally high skill in the general medical profession of a country cannot make up for ignorance of the problems which confront armies; and to rely, to a very large extent, on civilian practitioners, untrained in a military sense, can only result in disaster, with crippling of the army by much sickness and many deaths from preventable diseases, and in unnecessary suffering among sick and wounded soldiers. The military surgeon, in fact, practices a specialty in medicine which, while it is not in any way beyond the capacity of civilian physicians, requires special study and constant practice, just as do other specialties. Japan is a nation of specialists; her great advance in the brief period since she became a student of the methods of western civilization is largely due to this fact; and while the nation is not rich but poor, no country has probably ever excelled her, both in the desire that her army should reach the highest state of efficiency and that her soldiers, who are always expected to do their best for their country, should receive the country's best. So it was quite patent to her authorities that, in order to be ready for war, it was necessary, in time of peace, to maintain a medical personnel on the active list, at least sufficient for the greater part of the administration of the medical department in war. Japan had, therefore, during peace, medical officers on the active list largely in excess of her needs in caring for the sick and wounded then. For example, ten surgeons were detailed with an infantry regiment in peace, the requirements by regulations for war being only six, and elsewhere, throughout the active service, many more medical officers could always be found than those necessary to minister to the sick. Japan went further, however, in providing for a competent and sufficient medical department in time of war than in merely maintaining a liberal personnel of medical officers on the active list, in that she had also reserve medical officers. Most such reserve officers had seen active service and had some knowledge of medico-military matters, in which their instruction had been kept up by rather frequent medical maneuvers which they were required to attend when called. Except when on duty with the army at maneuvers, reserve officers, in time of peace, are nearly all in the active practice of their profession in cities, towns, etc. Many of them have established good reputations as civil practitioners, and some are men of wide note in Japan. The Japanese medical department authorities say that, in the recent war, these reserve surgeons proved their worth as medical officers of the army, and that there is no doubt that their instruction at maneuvers was of value. It was the intention of the Japanese to rely wholly on the active surgeons and these reserve officers in war, the former mainly for the administration, where their military training and practice would make them most valuable, and the latter principally for practitioners of medicine and surgery, but also, when necessary, for such administrative positions as their teaching, though not sufficient for the many purely military problems, which the active surgeons would have to meet, would enable them to fill. The magnitude of the recent contest did not permit this, however, as these officers were not sufficiently numerous for the work in hand, so the medical department was augmented by appointing new surgeons in the reserve. These new reserve surgeons were civilian practitioners, who were first examined as to their professional qualifications at the various division headquarters, were then given four months' instruction in a military hospital and commissioned if they were found qualified for the medical service. On account of the shortage of medical officers, it was not possible to confine the service of this class of surgeons to hospitals and other posts, where only knowledge of medicine and surgery was required, and the Japanese medical department authorities complain that they did not prove thoroughly satisfactory because they were unable to adapt themselves to the supply table of the medical department, often asking for articles which were of the same therapeutic value as those of the table, but which their experience in civil practice had led them to make favorite prescriptions. Also they were unable to withstand the hardships of the campaign, and, most important, were not respected by the officers and soldiers generally, so that their advice on sanitary matters was disregarded to an extent that it would not have been if their training had commanded the thorough respect of the troops. At the front, the practice of medicine and surgery was largely in the hands of the younger medical officers of the active list and reserve surgeons, while, at the base and on the lines of communication, the latter did this work, though everywhere older medical officers were available for advice and consultation. Notwithstanding the large personnel of medical officers available for war and the increase in strength made by commissioning new reserve medical officers, the country did not afford enough medical men to supply the personnel contemplated by the Field Regulations for the Medical Service, so, while the personnel was large as compared with that of some other countries, it was not sufficiently so to satisfy the Japanese authorities.

There is no doubt but that the plan of the Japanese for a medical department for war afforded a competent personnel from a military standpoint, but whether it was equally so from a medical standpoint still requires consideration. It is, of course, clear that the medical department of any army, so far as its professional skill is concerned, must be largely governed by the current medical teaching of the country in question, so we must first study medical practice, as exemplified in Japan. Japan may be said to be in the pre-surgical stage of her development, in that she has not reached nearly the limits of her abilities in this direction, and the practice of surgery does not compare favorably with that to which we are accustomed at home. The reasons for this are apparently that the demands for surgical work in civil life are not great, and the Japanese doctor is not attracted to the study of surgery as he is to other branches of medicine. It is rare to encounter a physician in Japan who has pursued a foreign course of study in surgery, though many men are met who have established good reputations abroad in pathology and bacteriology. Strangely enough, in surgery, those points where one would expect the Japanese to be particularly apt are those where they are most deficient. For example, they well understand the principle of asepsis and antisepsis, but do not get the best results, on account of their lack of deftness in operating, always pursuing the easiest method, such as universal circular amputations, and they, perhaps the best organizers in the world, in many ways, fail to train their operating room staffs, so that great confusion always exists. In medicine, conditions are somewhat better, special ability being manifested in the use of the microscope for diagnosis, but not so much in physical examination. The Japanese have confined themselves so largely to German teachers that it is a surprise to see that they have not followed their lead in therapeutic nihilism, but, as a matter of fact, they depend largely on drugs. Kitisato and Shiga have established world-wide reputations for their studies in bacteriology and the prevention of disease. Many other Japanese, though less well known, have done extremely creditable work on the same lines, and the Japanese medical profession, generally, is interested in sanitary problems.

As it has been asserted in other countries, that it is difficult to secure doctors for an army of equal skill and education to those who go into civil life, and that practice in medicine and surgery, during peace, is so restricted with army surgeons that, even if good material is secured for them, they must inevitably deteriorate and lose interest in the profession of medicine, it will be well to see how the Japanese met these questions and the results which they attained. Any army must enter into competition with the civil practice of its country for its medical officers, and the class of doctors for the army depends largely upon what inducements are offered, as compared with those of civil life. The Japanese take into account that every thinking man, in deciding on his life's work, looks at both sides of the question, and they try to make the medical service of the army sufficiently attractive to induce good men to adopt it. However much physicians may deprecate the question of rank in reference to their own profession, it is only by providing adequate rank in an army that the best men can be secured, as the rewards depend largely upon rank. It must always be patent to prospective candidates for admission to the medical department that their opinions must carry due weight, and this has largely to do with their relative rank, and they must take a place in the military hierarchy to which they believe they are entitled as members of a learned profession. The Japanese have apparently fully appreciated these facts and have been liberal in the matter of rank for their surgeons. The head of their medical department, Surgeon General Koiki, has the rank of lieutenant-general, one of their reserve surgeon generals, Sato, being given the same grade. The chief medical officers of each army rank as major-generals, and, by the way, there are but three major-generals on the staff of an army commander, the Chief of Staff, the Chief of Artillery and the Chief of the Medical Department. The chief surgeon of each division has the rank of colonel, as have the chief surgeons of the lines of communication, and the hospital directors of the large hospitals are lieutenant-colonels. The senior surgeons of field hospitals are majors, who, in time of peace, act as senior surgeons of regiments, in war going out to command field hospitals, the surgeon captains taking their places as surgeons of regiments.

The Japanese are content to take graduates from the Imperial Universities, who, on entering the service, receive the rank of first, instead of second, lieutenant, the latter grade being given to all others, and graduates of the medical schools, which are governmental institutions, and to commission them as medical officers, after a short trial and instruction period in military matters; but licentiates are not considered sufficiently well instructed in the lines of the medical profession, and, before this trial or military instruction period, are required to spend a year at the Army Medical School, where the teaching is largely on medical subjects. It is believed that, by these methods, the Japanese secure good surgeons from their own standpoint, better than those of the medical profession at large. After medical officers have entered the service, their promotion is partly by selection. It would, of course, be impossible for me to say whether this results in general benefit to the service. In reference to means taken to keep surgeons abreast of their profession, the Japanese army, in peace, is so large that practice in it is not more restricted than in civil life, and surgeons are encouraged to study medical subjects by giving good men courses on those in which they are particularly interested at the Army Medical School, and future practice along the line of their studies. As has been noted already, the active list of the medical department was largely confined to duties in connection with administration, but this should not be held to mean that such medical officers were not also engaged in the practice of sanitation, surgery and medicine. In Japan, medical officers, in even most of the higher administrative positions, are available for consultations and often care for the most severe and complicated cases of illness themselves, besides being very keen with all patients on the use of the microscope for differential diagnosis. Certainly, there was no lack of interest in medical studies on the part of Japanese medical officers on the active list, who were universally delighted to talk medicine to the exclusion of all other subjects. Reserve surgeons are from the same class as the active officers and, as stated, are habitually occupied in the practice of medicine and surgery throughout Japan. Reserve surgeons are promoted on proof of qualification, just as are those on the active list. The newly appointed reserve medical officers were never given higher rank on appointment than that of captain, and this grade was only given to men who had achieved some prominence in their profession. In my opinion, it would have been better to have given higher rank here, in order to have attracted surgeons and physicians of high attainments, which was not the case under the Japanese system. These could have been utilized, not in administrative positions, but as practitioners and consultants, where their ability must have been of great value. However, as will be seen later, such men were secured by the Japanese in another way. It may then be safely stated that, in Japan, the medical officers of the army are about equal professionally to their brothers in civil life, but they are experts in sanitation, as they receive special training in this subject and are constantly employed in the study of sanitary problems in connection with their army work.

Apothecary officers, which we do not have in our service, are found in the Japanese army.

These officers are usually graduates of schools of pharmacy and are commissioned under much the same regulations as are surgeons, though their highest rank is that of colonel. Their duties are practically confined to the dispensaries and to charge of certain supply depots. Such officers are, of course, much more necessary in an army, such as the Japanese, which manufactures a great many of its medicinal preparations, than if dependence was largely placed on purchases from druggists. With the Japanese, it would be difficult to do without apothecary officers unless the non-commissioned officers of the medical department were much better instructed in pharmacy than they are at present. The apothecaries do good work in making chemical analyses and in preparing medicines. They are found with every medical department organization, but not with regiments.

In the Japanese service, there is no hospital corps as with us. During the period of conscription, men, selected for the medical department, after they have served one of their three years as line soldiers, receive six months' instruction in a hospital and then return to their regiments for duty with the medical department there during the remainder of their active service. Non-commissioned officers of the medical department come from this same class of soldiers after further training. Forty assistant nurses, men of good qualifications mentally, but not so good as line soldiers physically, are taken in each division yearly and are given two months' training with troops and two in a hospital, after which they go into the reserve. From this, non-commissioned officers, nurses and assistant nurses come for medical department organizations in war, which do not exist in time of peace, except when they are assembled for maneuvers. At the time of the Chinese-Japanese War, civilian employees were used almost entirely for the nursing service of hospitals in the field, as well as at home, but on account of the difficulties met with in controlling employees generally in that contest, and their liability to contract preventable diseases, with subsequent infection of the army, they were largely excluded from the front and the lines of communication in the recent war. At home, however, hired civilians are still much depended upon for the positions of nurses and chief nurses, and, at the close of the recent struggle, some such men were necessarily employed on the lines of communication. In all hospitals, however, one or more soldier chief nurses are used to direct the administration under the surgeons. The Japanese state that they did not experience a great deal of difficulty in obtaining sufficient personnel to fill the positions of chief nurses and nurses, and their free employment of civilians was undoubtedly of great advantage to their medical department. The conscript personnel of the medical department is not particularly well trained, and nothing can be learned from study of the methods pursued in their instruction. They are, however, well disciplined, and no difficulties arise from their neglecting patients committed to their care, nor in their taking for their own use liquors and articles of food provided for the sick. The period of instruction for civilians employed as nurses is a short one, but notwithstanding this, they did not perform their duties badly. The medical personnel and the nurses, who have been employed in the presence of the enemy, have fully sustained the reputation they established in the Chinese-Japanese War for gallantry and forgetfulness of self in the performance of their duties in caring for their sick and wounded comrades. Female nurses belong to the Red Cross and are not part of the regular establishment.

Officers and non-commissioned officers of the intendance department are detailed for duty with practically every medical department organization. By this means medical officers in command are relieved of details in reference to the disbursement of money. The plan of having special officers at medical department organizations in charge of funds is an excellent one, as it enables the medical officers to make many purchases without obtaining special authority in each instance, almost a necessity in war, when prompt action is so desirable.

A few line officers are also found on duty with medical department organizations in the field, where the sanitary companies, some of the supply depots and the transport department for patients have them. It is doubtful if most of these positions filled by these officials could not have been satisfactorily administered by medical officers, and that possibly some reduction in personnel would have been accomplished thereby, but the Japanese could not find surgeons for them, even if they had desired to do so. Line officers in command of these organizations were all under the direction and control of higher medical officers. The men for the bearer companies come also from the line and the train. In time of peace, certain soldiers of the line receive special training in the duties of litter bearers, and it was intended that such men be used exclusively for the bearer companies. They were not sufficiently numerous, however, so that details were made to supplement this personnel from absolutely untrained men. The teaching of the bearers was insufficient, and it did not seem to me that, during the war, the Japanese took full advantage of the periods between battles for their further instruction.

With the infantry and artillery, company bearers are provided in the proportion of four men to each infantry company. These were supposed to have had the same class of training as the men for the bearer companies. In fact, it was intended that soldiers who received special teaching in bearer work should act as bearers for their organizations while on the active list and, after passing into the reserve, should be called out for service in bearer companies. As far as observed, the commanders of regiments and other organizations were quite willing in battle to detail bearers for carrying wounded, whom they much desired to get away from their unhurt comrades.

Japan has carefully studied the subject of voluntary aid and now has probably the best Red Cross Society existent. This organization is so powerful that it hardly brooks competition in its own special field. It will be impossible, within the limits of this paper, to treat the subject of the Japanese Red Cross exhaustively, and no attempt will be made to do more than to state a few facts in regard to it. The last publication of the Red Cross gives the number of its members at 1,035,000. The total income for 1903 was more than 2,965,300 yen, and early in the war the capital was reported to be 8,413,018 yen. (A yen, in round numbers, is fifty cents.) It is, therefore, evident that the society thoroughly commands the confidence of the public. The approval and assistance of the Emperor has been a potent factor in the attainment of this result. The society does not attempt to run any organization in competition with the medical department of the army, but is advised, as to the needs of the army in time of peace by a representative from the army on the board of governors, makes yearly reports of what it will be able to furnish during the coming year to the Minister of War and has assignments for its personnel made in time of peace, so that no delay occurs when war comes. The society devotes its attention mainly to furnishing the medical department of the army with personnel and not material. Such personnel is trained in time of peace by the society, being sent on the outbreak of war to the various hospitals, ships, etc., where it comes under the command of medical officers of the army, fusing with the other personnel of the medical department organization in question. The services of the personnel of the Red Cross are wholly utilized at the base and on the lines of communication and never at the front, by the society sending the army certain relief corps. The most important of these are called Relief Detachments, which have for their purpose the giving of assistance to the army medical staffs of hospitals. The society has also organized transport columns, hospital ships, rest stations and depots of supplies. The unit adopted for the personnel of a Relief Detachment is that considered sufficient for the care of one hundred patients and is as follows: Two physicians, one pharmacist, one clerk, two chief nurses or chief attendants, twenty nurses or attendants. It is planned to use nurses (women at home) and attendants (men) on the lines of communication. Two hospital ships are now owned and operated by the Red Cross, and the construction of two more is contemplated.

The work of the Red Cross in the recent war may be briefly summarized as follows: The two hospital ships owned by the society were made ready for service as soon as instructions were received from the army, the names of these vessels being indicated to Russia by the authorities in accordance with the rules of The Hague Convention. The *Hakuai Maru* sailed from Ujina on the 21st of February, 1904, and the *Kosai Maru* on the 25th of the same month. Since then, both have been engaged in the transportation of patients between the different ports in Korea, Manchuria and Japan. The central hospital of the society in Tokyo was immediately appropriated to the use of the army on the outbreak of war as a branch hospital of the Tokyo Military Reserve Hospital. Many additional structures, principally wards, have been erected here since the outbreak of the war. At Hiroshima, the land owned by the society has been put at the disposal of the army, which has erected a temporary hospital on this site. Seventy-eight relief detachments have been dispatched to the military hospitals at home, and 32 have been sent to Korea and Manchuria. Nearly all these have served with the army. In addition, 38 relief detachments have been assigned for service to the hospital ships owned by the army. One depot of supply has been established on the lines of communication, and one transport column has been located on these same lines. In addition to these institutions, 13 agencies at home and one at the front have been organized, in order to facilitate the management of the relief detachments, numbering 152 in all, and of the relief stations established at ports and railway stations. These stations have had their working personnel largely from members of branches of the society. The Red Cross reports that it has sent out more than 4,700 nurses, both male and female, from which personnel, with the necessary additions to complete them, five detachments have served wholly in Russian prison hospitals and stations. The approximate expense of Red Cross work, up to the end of the year 1905, is estimated at 5,160,000 yen. The doctors of the Red Cross do not have to meet, in the performance of their duties with the army, the problems in regard to sanitation, which constitute the primary function of the medical officers. As far as the practice of medicine and surgery is concerned, they are on a par with the latter. The nurses of the Red Cross, that is the men, are perhaps slightly more competent than their *confrères* in the army, and the women do the greater part of the skilled nursing at home and on the hospital ships. While they are not so well taught as are trained women nurses with us, they are much better than any other nurses in Japan. During the war, the Red Cross received some aid from sister societies in foreign countries. Probably the most important came from Germany, which sent out two very competent surgeons and a nurse, with a movable hospital and a good outfit for surgical work. A German gentleman in Tokyo gave his residence to them as a site for a hospital. The Japanese erected some temporary wards there and made the institution a branch of the Tokyo Reserve Hospital. The German surgeons did some good surgery during the several months they stayed in Japan.

The Ladies' Volunteer Nursing Association has supplemented to some extent the work of the Red Cross Society. The principal function of this organization, has, however, been to raise the status of the woman nurse in Japan, which has been done by the members of the society, women of high rank visiting the hospitals. Some of them have studied nursing. In combination with local sections of the Red Cross, the Ladies' Association has established a number of rest stations on railways. During the course of the war, a number of other societies for the aid of soldiers' families and like objects have been established, but to discuss them is hardly within our purview.

The feeling in Japan that the war was a national one, in which every one should do his part, led to the free proffering of much voluntary aid individually. A number of civilian practitioners of high reputation, professors of colleges and court physicians offered their services, and they were utilized as consultants at the reserve hospitals and also for inspections on the lines of communication.

This finishes the subject of the personnel of the Japanese medical department, except that it is still necessary to say a word or two in reference to the control of medical department matters and its participation in the operations of the army. By the Field Service Regulations, the medical department is charged with the duty of looking after the health of the army and of caring for the sick and wounded. It is also stipulated there that this will be held to include all matters which must be carried out in effecting the above-named purposes. The medical department is absolutely in control of all medical department matters in connection with the care of sick and wounded, that is, medical officers are in command of all hospitals and convalescent camps; and as has been already stated, in the few field sanitary organizations which line officers command, their direction is vested in the chief surgeons of the organizations to which they pertain. The Field Service Regulations for the Medical Department require that the commanders of armies and divisions inform the chief surgeons of these organizations of any contemplated operations, so that the latter officers may properly prepare their department to perform its duties in them. The spirit of these regulations is thoroughly lived up to by Japanese commanders, and medical officers have full knowledge of movements, so they are able to prepare for them. It is needless to say that medical officers never violate the confidence of commanding officers by disclosing anything in connection with contemplated movements of troops.

In time of peace, the medical department of the Japanese army does not collect great amounts of medical stores for war, devoting its energies in this direction only to the accumulation of field supplies, which are, in the main, stored at the divisions and are thus instantly available for troops taking the field. Under the regulations, routine inspections of such supplies, in order to ascertain if they be complete and have not deteriorated in store, are made at frequent intervals. Enormous purchases of medical supplies have been necessitated during the recent war. The greater part of these for the field were made at the main medical department storehouse in Tokyo. These stores were turned over for shipment to the department for transportation and communications, by which they were sent to the Manchurian storehouse at Dalny, and thence distributed to the various branches of this storehouse, and, finally, to the armies and divisions. A few articles, such as blankets and hospital clothing, came from the intendance, and not from the medical, department. These were also shipped to the Manchurian storehouse, where they were sent to the medical officer in charge of the medical section, who forwarded them to the front, along with other medical supplies. At home, purchases for the individual divisions are made, so far as possible, in the divisions themselves. The Japanese are very careful, both with medical department articles, which they manufacture themselves, and with those which they purchase from contractors, to make sure that the quality is satisfactory; and at the medical depots and the division hospitals, just as in all other depots, where the Japanese manufacture or buy stores, careful inspection, and analysis when necessary, are carried out for all articles.

(To be continued.)

THERAPEUTICS BASED ON PATHOLOGICAL PHYSIOLOGY.[*]

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BY pathological physiology we mean such processes as fever, diarrhea, vomiting, leucocytosis, hyperemia, polyuria, muscular spasm, — processes by which we conceive the organism to react to the cause of the disease affecting it. These processes may not be manifested postmortem in any demonstrable lesions. They do not constitute a *pathological anatomy*. Neither are they necessarily present to the patient's consciousness as *symptoms*.

Treatment based on pathological physiology is therefore to be distinguished alike from:

(*a*) Treatment directed to remove the cause of disease (*e. g.*, thymol for hook worms).

(*b*) Treatment directed to remove a diseased tissue (*e. g.*, excision of mammary cancer.)

(*c*) Treatment directed to remove a symptom or group of symptoms (*e. g.*, acetanilid for headache).

The treatment here discussed is not etiological or symptomatic, but is suggested by watching what the body does when confronted with the cause of disease, *i. e.*, by studying the adaptations through which a *modus vivendi* is arrived at.

After making up our minds what is it that nature[1] is doing to adapt itself to the disease (considered here as an environment), we attempt:

(*a*) To supplement or imitate nature's efforts.

(*b*) To oppose or neutralize nature's efforts.

(*c*) To modify, limit or divert nature's efforts.

(1) Nature makes you rest when you are dis-

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[*] Read at the meeting of the Association of American Physicians, May 15, 1906, Washington, D. C.

[1] The word "nature" is here used to represent the process of pathological physiology as just defined.

eased — burdens you down. Therefore *rest* is a principle to be obeyed.

(2) Nature forms antibodies during infectious disease. Therefore we help by preparing and injecting more.

(3) Nature immunizes us even by slight attacks. Therefore we vaccinate.

(4) Nature narrows the variety of likable and digestible *foods* in many diseases. Follow her lead and diet.

(5) Nature accumulates in the serum of inflammatory edema antibacterial bodies. Hence produce passive congestion (Bier's method).

We cannot deny that all such treatment is based upon a theory of what the body is doing, and a theory of the benefit of our action in relation to the disease. This theory may be wrong and the treatment based on it may do harm. A modern example of this sort of mistake is the treatment of acute dropsical cases of nephritis with large amounts of water in the belief that the water will "flush out the kidneys." As water is now known to be excreted with difficulty by the kidney in many cases of nephritis, the wisdom of bringing on the heart and kidneys an extra strain may well be doubted.

How are we to guard against this sort of mistake? Only by realizing that empiricism should be a part of every type of treatment. Does it work? We must incessantly ask of any treatment, no matter how scientifically based; empiricism should not be conceived as a separate type of therapeutics, but as a part of all therapeutics. It is *verification* of our theories, control of their flight, and is, of course, the ultimate test of any theory. Every treatment must have at least empirical foundation. The only question is, Has it anything more?

What more can it need? What is the use of a theory of the mode of beneficent action so long as we are sure of the beneficence?

The use, we answer, consists in the fact that a sound knowledge of the reasons for any successful treatment often enables us to extend the field of its success, — *e. g.*, a remedy like diphtheria antitoxin, discovered in pursuance of a theory, and verifying by its success the notions of immunity by the use of which it was discovered. Such a rational remedy points the way to extensions, to fresh applications; in short to therapeutic advance.

If it was true, for example, that the supposed action of small doses of ipecac in checking vomiting was manifested because of a universal and verifiable law of cure, such as our homeopathic brethren believe that they possess in "*similia similibus curantur*" — if this was empirically verifiable it would lead us at once to a host of new and valuable therapeutic resources, other applications of the principle.

We need just as many true theories as we can get. Without them science makes but little progress. But, of course, every theory must be rigidly and repeatedly verified.

Therapeutics based on pathological physiology has already begun to remodel our methods of examination and diagnosis. When our treatment is purely etiological (as when we expel a brood of hook worms with thymol), we need not regard the individual factors to any considerable extent. One case is treated much like the next. But when our treatment is based on the manner in which an individual organism *reacts*, on the "totality of symptoms" or, rather, on so many of them as appear to exemplify the body's manner of reacting to disease, we are forced to note just how it *does* react.

(*a*) The exact manner and stage of this man's reaction.

(*b*) The personal, family, hereditary and racial peculiarities.

(*c*) The social and mental factors.

We ask different questions and put different tests. In the diseases of the kidney one ceases to base therapeutics wholly or chiefly on the supposed anatomical condition of the kidney as judged from the urine. We look rather for the presence or absence of renal insufficiency. If there is no insufficiency we do not direct our artillery at the diseased organ, but at prolonging, supplementing, guiding the *status quo* — the desirable *modus vivendi* which the body has worked out for itself.

In malaria or hook worm disease we ask *ubi est morbus*. Finding the cause of disease we then head straight for it with a club and usually succeed in crushing it by direct attack. This is ideal therapeutics, but an ideal attained as yet in but a few diseases.

When this is not possible we cease to look for a *locus*, a diseased spot to be attacked, and look widely over the whole body to discern, if we can, evidences of self help which we can take hold of and assist, modify, or direct.

I. EXAMPLES OF TREATMENT WHICH AIMS TO IMITATE OR SUPPLEMENT PATHOLOGICAL PHYSIOLOGY.

(1) Antitoxins and prophylactic injections.

(2) Removal of gangrenous appendix or foot.

(3) Remove a "hidden sorrow" (Freud's psycho-analysis).

(4) Depletion in dropsy (purge, sweat, bleed, tap, etc).

(5) Bed in all asthenic conditions.

(6) Poultices and passive hyperemia (Bier).

(7) Diet in fevers — following instinct and ability to digest.

(8) Washing out a stomach where there is stasis and fermentation.

(9) Purging in an acute dyspeptic diarrhea.

(10) Setting a bone.

II. EXAMPLES OF TREATMENT INTENDED TO MODIFY, DIVERT OR LIMIT PATHOLOGICAL PHYSIOLOGY.

(1) Sitting up with a "jumping" toothache.

(2) Diverting thought from self in psychasthenia by hydrotherapy and manual work.

(3) Checking peristalsis with opium towards the end of a fermentative diarrhea.

(4) Bathing in typhoid.
(5) Diet in diabetes.
(6) Re-education in tabes.
(7) Education in neurasthenia.
(8) X-ray treatment of leukemia.

III. EXAMPLES OF TREATMENT WHICH AIMS TO OPPOSE PATHOLOGICAL PHYSIOLOGY.

(1) Forced feeding in Graves's disease.
(2) Restraint in dangerous delirium.
(3) The use of enemata and laxatives.
(4) Massage and passive motion for adhesions after sepsis.
(5) Counterirritation.
(6) Exercise and diet in obesity.
(7) Alkalies in diabetes.
(8) Dilatation of strictures.
(9) Massage after a sprain.
(10) Climatic treatment of Raynaud's disease.

SUMMARY AND CONCLUSIONS.

(1) Treatment based on pathological physiology is not the best type of therapeutics yet worked out; neither is it the worst. It occupies a position intermediate in value and efficiency between etiological treatment (or that which removes the cause of disease) and symptomatic treatment which simply smothers a symptom.

(2) It is based on theories of the nature and trend of the body's reaction against the *materies morbi*, theories which like all valuable hypotheses must be constantly and empirically verified.

(3) Empiricism is not a type of treatment, but an essential element in all treatment. Nevertheless:

(4) Theory is invaluable because it furnishes the motive power of most scientific progress; empirical verification guides but does not initiate this progress.

(5) Treatment that aims to remove the cause of disease should neglect very largely the individual factors in the case, but treatment based on pathological physiology can be effective only by ascertaining and respecting the physical and psychical peculiarities of each individual and the unique relations in which he stands to his family, his work, his education, his place of residence and many other aspects of his invironment.

(6) Etiological or symptomatic treatment must first ascertain at what spot in the organism the trouble resides. To that spot it then directs its energies. But treatment based on the individual's manner of reacting to the disease must study the whole individual so far as it can discover him.

USE AND ABUSE OF PULMONARY GYMNASTICS IN TUBERCULOSIS.*

BY EDWARD O. OTIS, M.D., OF BOSTON,
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Pulmonary gymnastics or deep breathing, which are quite generally recommended and used in the treatment of pulmonary tuberculosis, are all too frequently thus recommended and employed, both by the physician and the patient himself, in a vague, indefinite and indiscriminate fashion, both as to the method of their application and as to the class and condition of the patients to which they are applied.

Moreover, both the advocates of pulmonary gymnastics and those who are opposed to them argue upon more or less hypothetical grounds. What seems to be needed is a series of observations and comparisons made upon patients representing as nearly as possible the same general and local conditions; and until such are at hand, we can only discuss the question from personal experience and convictions derived therefrom, and upon general principles.

At the Massachusetts State Sanatorium for Tuberculosis, the resident physicians, Drs. Dunham, Lapham and Crane, have kindly made at my suggestion a series of such observations and comparisons. Drs. Dunham and Lapham took thirty-seven patients, men and women, who were in the quiescent stage of the disease, with no temperature, and who were or had been gaining in weight. They were, in general, improving cases and were taking a limited amount of exercise. They represented all stages of the disease. All had more or less cough, and nearly all had bacillary sputum. Two periods, of two weeks each, were taken. In the first period they were told to refrain from deep breathing and take shallow breaths, and in the second period they were encouraged to breathe deeply and four times a day to practise forced respiration. Of course, the periods were too short to permit anything more than a very general inference as to the effects of deep breathing. In fact, practically no change in the condition of the patients occurred during the two periods. In no case was any ill effect observed during the deep breathing period, or was the favorable course of the disease prejudiced. The exacerbations which happened to occur during the trial all occurred during the shallow breathing period, probably only a coincidence. Almost all expressed themselves as feeling better while practising deep breathing.

Dr. Crane reports the results in forty-three cases who were given, for a much longer period of time, class gymnastics, in which deep breathing was included, and then for a period of months such exercise was omitted. No material difference in the condition of the patients or the progress of the disease was observed during the two periods; but, as in the other series of cases, the patients generally expressed themselves as feeling better and eating better during the exercise period. In these cases also no ill effects resulted.

So far as deductions can be drawn from these experiments, they would indicate that at least no harm results from the employment of pulmonary gymnastics in properly selected cases, or that any appreciable influence is produced upon the course of the disease, except that the patients feel better and imagine, at least, that deep breathing is beneficial to them.

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* Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 18, 1906.

In any intelligent discussion of the problem, we must first define what we mean by pulmonary gymnastics. Do we mean simply deep breathing with or without supplementary arm movements, or, in addition, various exercises of the body, which, as all exercise does to a greater or less degree, augment also the pulmonary action, such as free-hand class work, walking up hill, games, etc.? I understand that in this discussion the former is meant, namely, deep breathing with or without arm movements, such as can be practised either standing, walking or reclining. In the second place we must agree upon the stage and activity of the disease and the general condition of the patient in which pulmonary gymnastics are admissible if it is granted that they are admissible at all.

In general, I should define the suitable cases as those which are in the process of arrest, with no acute symptoms and in good or improving general condition, and the incipient cases with little or no activity and with no marked evidence of general deterioration.

Schultzen [1] considers the so-called curable cases with not far advanced disease and with no acute symptoms or complications as the favorable ones for pulmonary gymnastics, although he says that at the Sanatorium at Grabosee when the material was not always of the best, from 65% to 75% of the patients took lung gymnastics.

We all would agree, I suppose, that those which are considered to be " rest " cases, either on account of increased temperature, rapid pulse, or their general condition, in brief, the acute or non-quiescent cases, are unsuitable for pulmonary gymnastics. Ransome lays great stress upon keeping the range of respiratory movements, in acute cases, as small as possible, in order that there be " no disturbance of underlying inflamed tissues, and no dragging upon any adhesions which may have formed between the two layers of the pleura "; he considers it most important that there should be entire repose of the bony levers overlying the injured part.[2]

Having defined pulmonary gymnastics, and selected the class of cases suitable for them, we have the double problem to consider: First, does deep breathing hasten the process of arrest both by its influence upon the local and general condition; and, secondly, is such deep breathing, if it produces no observable beneficial influence upon the patient, likely to do harm?

For our answer we have largely to depend upon the personal experience of various observers, and upon abstract reasoning from general physiological and pathological principles. Liebermeister, Volland, Michaelis, Cornet and others, have expressed their opposition to this form of exercise, either as the result of their personal experience, or upon theoretical grounds. The dangers they have observed or fear are aspiration pneumonia; interference with the formation of a zone of demarcation; (Cornet) tendency towards hemorrhage; the development of emphysema; the tearing apart of delicate cicatricial tissue and conservative pleural adhesions; conditions favorable to the growth of the bacilli, and increased absorption of proteins (Cornet); aspiration of bacillary sputum into other portions of the lungs.

On the contrary, Dettweiler, Turban, Meissen, Prof. A. Fraenkel, Schultzen and many others, all from extensive personal experience, favor and employ, under carefully guarded conditions, pulmonary gymnastics.

Dettweiler, after giving very careful instructions as to how deep breathing should be applied, concludes by saying that " the habit [deep breathing] will become a necessity, and through its means the troublesome tendency to constantly cough will be blunted."[3] He also adds that it is often wrongly applied.

Turban [4] declares that he has employed many times with advantage deep breathing cautiously and methodically applied; and has found it of especial value, he says, with the habitually weak breathers. " It is doubtless true," he continues, " that an extreme expansion of a tuberculous lung may result fatally, but it is equally true that methodical deep breathing increases the ventilation and circulation of the lungs, and, therefore, improves their nutrition." Turban's method is by taking five to ten times daily ten to twenty full breaths at a time in the reclining position. Fraenkel's method is practically the same: every one-quarter to one-half hour to twenty quiet, deep breaths are taken, the mouth being closed.

Schultzen [5] says that pulmonary gymnastics adapted and applied by the physician to each individual case, and carefully and constantly supervised, are a very valuable aid in the treatment of pulmonary tuberculosis, and deserve to be systematically employed with each tuberculous individual, in whom, after a careful examination no contra-indication exists. He further says that improper body positions, round, stooping shoulders, and weak respiratory muscles are improved thereby.

At the sanatoria of Belzig, Friedrichsheim, Leysen, Hohenhon, and Nordrach on Dee, pulmonary gymnastics are employed in properly selected cases.

Reasoning from a physiological basis, if good breathing is necessary for the maintenance of the pulmonary tissue in a healthy condition, as well as the whole organism, through properly aerated blood; and if insufficient expansion of the apices is a predisposing cause of tuberculosis as is alleged; then, when the lungs are diseased, proper ventilation through efficient respiration might be assumed to be one of the natural means to be adapted in the effort to restore the integrity of the lung tissue and rendering it as well as the whole organism resistant to the infection, on the reverse principle of " *similia similibus curantur.*" And this is the theory which has been and still is largely in vogue, particularly among the laity, as witness the wide use of the breathing tube, which is only a means of effecting pulmonary expansion. On the other hand, those who are opposed to pulmonary gymnastics in any stage of the disease have their argument upon the general principle of rest to an injured or diseased part or organ. A tuberculous joint, they say, is put at rest by the surgeon. In peritonitis we endeavor to restrict peristalsis in order to keep the peritoneum at rest. In certain cardiac diseases we use digitalis to increase, among its other effects, the intervals of rest, etc. Why not, on the same principle, restrict as far as possible the movements of the diseased lung?

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[1] Ueber Atmenubungen bei der Behandlung der Lungentuberculose, von Stabsarzt Dr. Schultzen, Berlin. Zeitschrift für Tuberculose und Heilstattenwesen, vol. i, p. 135, 1900.

[2] The Principles of Open-air Treatment, Ransome, p. 19, 1903.

[3] Die Therapie der Phthisis. Dettweiler, 1887, p. 29.

[4] Beitrage zur Kenntniss der Lungen-Tuberculose. Dr. K. Turban, p. 124, 1899.

[5] *Loc. cit.*

I fail to recognize the analogy between the case of a tuberculous joint and a tuberculous lung, referred to by Cornet and others for, as Neitzert well says,[6] the immobility of the joint or even its amputation produces no severe injury to, or prejudices the functions of, the body as a whole. The lungs, on the contrary, influence by their function the whole organism. They must furnish oxygen to the blood that it may properly nourish the body, and eliminate carbonic acid gas. When this function of the lungs is interfered with, not only the whole body but the lung tissue itself suffers. Only through efficient respiration can the need of the body for properly aerated blood be met.

It may be well here to remember that the vast majority of tuberculous individuals cough more or less and the act of coughing necessitates deep breathing. so that the consumptive, as a rule, is really practising deep breathing in an irregular fashion, whether he will or no. Furthermore, the act of respiration either in the sick or well is not steadily uniform but ever varies in its amplitude. Every exertion — taking the morning bath, walking, going up stairs, talking and the innumerable daily movements — increases the respiratory excursion, to again diminish during repose. So that the question of efficient breathing resolves itself to a certain extent into one of degree and regularity; of doing with uniformity and systematically what is done any way irregularly and spasmodically. And then we have pulmonary gymnastics.

The contra-indications to pulmonary gymnastics are given in detail by Schultzen [7] with which I think we would all substantially agree. They are as follows: (*a*) Fever; (*b*) great bodily weakness; (*c*) acute inflammatory process of the lung tissue; (*d*) evident advancing, softening or disintegration of the lung tissue; (*e*) increasing extension of the local tubercular lesions with rapid increase of the same accompanied with very copious persisting expectoration; (*f*) newly formed or old large cavaties; (*g*) recent inflammation of the pleura or increasing plural effusion; (*h*) existing hemorrhage or that which has recently occurred, even of the smallest amount unless from stasis; (*i*) pathological conditions of the blood; (*j*) advanced tubercular laryngitis, especially ulcerative and accompanied with perichondritis; (*k*) intercurrent diseases, or severe complications on the part of other organs; (*l*) possible, unexpected occurrences of disturbing phenomena which may be produced or excited by the pulmonary gymnastics.

It may be useful also to give the exact method of deep breathing as employed by Meissen, Nahm and others. First, a deep inspiration is taken through the nose, the mouth being closed. Second, the breath is held for a moment. Third, a deep expiration through the nose or mouth. The inspiration can be strengthened by gradually raising the arms to a horizontal position or over the head, and letting them fall in expiration. The expiration can also be strengthened by uttering a short word at the end of expiration, for example, " one," then " two," etc. Six such breathing movements are to be taken at one time, which may be repeated many times during the day, and they may be performed either reclining, standing or walking. Violent and fatiguing efforts in deep breathing are to be avoided.

To summarize: With carefully selected cases, in which none of the contra-indications above mentioned exist, cases with no acute symptoms and with a tendency towards arrest or well on the road to arrest, and possessing a certain amount of vitality, pulmonary gymnastics carefully applied and supervised would appear, both from experience and theory, to be useful in aiding and hastening the arrest; at least, there is no conclusive evidence that harm results therefrom. Furthermore, the patients themselves express a sense of well-being from such deep breathing and the mental effect is of value. Used in unfit cases, and many cases on the border line can only be determined as fit or unfit by trial, harm may obviously ensue.

THE ABUSE OF PULMONARY GYMNASTICS.

From what has been said above, it is obvious that pulmonary gymnastics are to be applied with the same discrimination and individual application as any other form of treatment. Indiscriminate use of them can only be followed by the same results as the indiscriminate use of any other remedy, sometimes to good effect, sometimes to the injury of the patient. It may again be repeated that all cases and all stages are not suitable for the employment of pulmonary gymnastics; but, on the other hand, other cases are, and the evidence at hand would appear to prove their value.

PULMONARY GYMNASTICS IN TUBERCULOSIS.

BY HENRY B. DUNHAM, M.D.,

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THE reason for such a lengthy discussion of what appears on the surface and from the title to be.such a simple topic will be better understood if a brief mention is made of the attitude of a few eminent phthisiologists who took part in the discussion of this subject at the recent meeting of the National Association for the Study and Prevention of Tuberculosis in Washington. Specialists in tuberculosis, moreover, have of late realized that a great mistake has been made in the past by indiscriminately advising the consumptive to indulge in various kinds of exercise and gymnastics, with or without forced respiratory movements.

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[6] Zeitschrift fur Tuberculose und Heilstattenwesen, Band 5, p. 126. 1904

[7] *Ibid.*, vol. i, p. 135. 1900.

Dr. Charles Minor, of Asheville, N. C., whose paper it is that furnished the material for discussion, stated in effect that pulmonary gymnastisc still have their place in the treatment of tuberculosis and that he had found their use of decided value in properly selected cases.

Dr. Norman Bridge, of Los Angeles, considered them harmful to the last degree and condemned their use in all cases of whatever type. Dr. Otis discussed the paper. Dr. S. A. Knopf. of New York, spoke strongly in favor of their use under the proper circumstances. Dr. H. Maxon King, of Liberty, N. Y., felt that the safest course was to refrain from advising any form of breathing exercise for tuberculosis patients.

From the above, it is plain that there is a decided lack of unanimity, even among specialists, on the subject of pulmonary gymnastics. One of the reasons for this disagreement, I think, and a matter which should have been touched upon during the discussion, is that it makes some difference as to the point of view in prescribing deep breathing, *i. e.*, whether the patient is closely under the eye of physician or nurse at a sanatorium or can only make an occasional office call upon his medical adviser.

Up to the time when the disease becomes "arrested" in the treatment of tuberculosis, I believe that any set of experiments, in which certain patients take exercise and others take complete rest, will demonstrate that with the majority of cases, rest causes the greatest amount of improvement and gain in weight. Looking upon pulmonary gymnastics from this point of view, it would be impossible to form any other conclusion than, in so far as the exercises were "gymnatsic" or taken in connection with limb movements, the breathing exercises would more often prove detrimental than beneficial. I believe, however, that deep breathing without unnecessary exercise is usually beneficial in all but active or advanced cases of the disease. One of the strong arguments by opponents of deep breathing in favor of absolute restriction of movement in diseased areas of the lung is that in tuberculous joint disease, movement and any meddling with the joint surgically has usually been an unwise procedure. But it may be mentioned that in tuberculosis of the peritoneum, the exposure of the peritoneum to the air through laparotomy is almost the only remedy of value. No one seems to deny that breathing exercises may not be of benefit as a prophylactic against tuberculosis, and the development of chest capacity by regular deep breaths of fresh air cannot be said to have done harm in the well. The "well," however, we must remember, are afflicted slightly with tuberculosis to the extent of perhaps 33%, and so if we can grant that deep breathing would benefit these people, it becomes then a matter of deciding just how much of a lesion it is possible to have and just how nearly active it may have become before breathing exercises can do harm.

Why does the tubercle bacillus have a predilection for the apex of the lung? The respiratory movement is less there than in any other portion of the chest, and the aëration of this portion is less perfect than elsewhere in the lung. In fact, depression and partial immobility above and just below the clavicle is one of the diagnostic points of tuberculosis. An earlier sign is the restricted movement of the diaphragm on the affected side. Presuming that this restricted movement exists to a certain extent, even prior to our ability to perceive and utilize it in making a diagnosis, are we not justified in forming the opinion that this very restricted movement of the diaphragm has possibly been provocative and etiological.[1] Certainly, it cannot be asserted that where a restricted excursion of the diaphragm is present to a marked degree, the prognosis is better than where such restriction is present only to a slight degree. One of the mistakes that has been made by the advocates of deep breathing in pulmonary tuberculosis has been to associate exercise with it. There has been too little distinction made between deep breathing which is produced as a natural consequence of gymnastic exercise, hill-climbing, etc., and the quiet, full respiration which a person can take while otherwise absolutely at rest. Exercise uses up and consumes any excess of oxygen in the tissues, and I believe that it is upon an excess of oxygen within the tissues that we must depend in overcoming the disease. Deep breathing, however, without any extra, unnecessary exertion would favor the accumulation of an oxygen excess within the tissues and more rapidly produce a hyperaëration which is one of the prime objects of the open-air treatment.

It may be a fact that hyperaëration of the blood and tissues is possible when a large thin membrane like the peritoneum is exposed to the air, and evidently the excess of oxygen absorbed may be sufficient to increase the resistance of the tissues to the growth of tubercle bacilli; while on the other hand, partial aëration or imperfect oxygenation, such as occurs on opening a joint, might favor the growth of such an aërobic germ more than the absolute absence of air, and by not producing a hyperaëration of the tissues in that region would accomplish nothing in the way of assisting the cells to destroy the germ.

With active advancing tuberculosis, such as is evidenced by the presence of fever, it is obviously impossible, on account of the excessive combustion, to produce a hyperaëration or excess of oxygen within the tissues. When this is the case it becomes evident that the resistance of the tissues cannot be aided by introducing oxygen, and the germ growth is best restricted by an exactly opposite course. We should proceed according to the method of treating joint disease, therefore, and try to cause a diminution of the oxgyen present in the diseased area, so as to, by reversing the method of attack, retard the multiplication of this aërobic bacillus. In such cases the collapse of the lung, according to Murphy's method, might thus be followed by temporary improvement.

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[1] Birch Hirschfeld reports a case of basic tuberculosis "traced to insufficient aëration . . . due to the upward pressure of the diaphragm from the enlarged uterus." — Medical Record (editorial), July 14, 1906.

In order to make it perfectly clear that hyperaëration or excess of oxygen has as deterrent an effect upon the growth of this aërobic bacillus as even the entire absence of oxygen, I will cite the recent experiment wherein hyper-ventilated rooms on the north were found to be less favorable for the existence of tubercle bacilli in dust than in the dust of certain sunny southerly rooms which were kept tightly closed. This experiment definitely established the antiseptic value of moving currents of fresh air, which were determined by it to be about equal in value to diffuse sunlight but better than diffused sunlight without ventilation.

For several years a large number of the patients at the Massachusetts State Sanatorium have practised a simple, deep breathing exercise lasting about one minute, four times daily. During a period of about three years, we measured the lung capacity of each of these patients every sixty days while at the Sanatorium. We all thought that the breathing exercises tended to enlarge the chest capacity. In no case was a patient discharged "unimproved" who had developed an increase in lung capacity, whereas, failing health was always associated with any marked decrease in the number of cubic inches of air the lungs contained. In regard to irritation of the diseased area by respiratory movements, what statistics we have seem to show that the wearing of a belt in place of suspenders (which would throw more work on and increase the expansion and movement of the apical portion of the lungs) has always been attended by benefit and never by harm, and that the wearing of suspenders and discarding of the belt has, in at least one case known to the writer, been associated with (but not necessarily responsible for) the onset of the disease. To give an idea, however, of the possibly misleading character of statistics derived from even large numbers of patients who have been directed to follow diverse modes of breathing at two different periods, it is interesting to note that of about thirty patients who were told to practise shallow breathing for a period, four of the patients were in bed with high fever before the fourth day of the period had elapsed, and in another set on the same experiment, in another service at Rutland, a patient had her first severe cold on the very next day following instructions. If by chance this unfortunate condition had occurred during the period of deep breathing, it would have been seized upon at once as a conclusive argument against such deep inhalations. In regard to the experiments upon the other service mentioned, may it not be more than coincidental that the results were similar, that is, several exacerbations during the period of shallow breathing and none during the period of deep breathing? Experiments on the two services were not started during the same week, and this should serve as a check upon any supposedly morbific outside influence. In order to make a perfectly fair test of the two modes of respiration, all of the patients continued with the same amount of exercise ordinarily prescribed, but during one period were instructed to take deep breaths regularly at stated intervals and at another period were instructed to practise only shallow breathing. In order to insure this latter, they were told to wear a slight splint in the form of a swathe and thus obtain a slight immobility in the upper thorax during the period in which the test was made. If the theory of the splint is the correct one, we should encourage our patients to sit bent over with rounded shoulders and with arms crossed tightly in front of the chest. Such an attitude, except in the very ill, is repugnant to all, and one of the surest ways to make a patient do absolutely the opposite is to instruct him to maintain such an unnatural position at all times. Almost all the patients who were selected for the experiment mentioned had moist râles and tubercle bacilli still present in their sputum, although the general condition was excellent, and improvement in symptoms had been satisfactory. These patients were carefully watched during the period of two weeks in which only shallow breathing was allowable and the conditions were compared with those during a period of two weeks in which deep breathing was encouraged. The conditions of rest and exercise remained the same throughout both periods. In spite of careful explanation of the splint theory, these patients revolted at the suggestion that the upper diseased portion of their lungs be strapped, swathed or partially bandaged and many seemed loath to take up the idea of restricting their breathing movements; one (involuntarily, perhaps) took full, deep breaths even while I was giving instructions not to do so. In regard to the second period in which the suggestion was made to discard suspenders and wear belts, raise the shoulders and keep the upper part of the lungs well filled with air, exactly the reverse happened, and the instructions were met with universal approval.

Although it may seem paradoxical, I believe that oxygen (although an agent of combustion) is also in a sense one of the most valuable and necessary food elements in the proper nourishment of animal life. In treating tuberculosis, just as the digestive powers should be exercised and their function stimulated to the limit of assimilation, so I believe the lungs should be exercised and have constantly within their alveoli as much of the freshest, "most appetizing" air as they can possibly assimilate. Eating, even if there be no appetite, is urged under proper limitations. Respiration beyond the involuntary demand for oxygen, it seems to me, may also be urged with due restrictions and proper limitations. The element oxygen forms a very large part of the body's weight. We do not allow a patient to forget to eat, or to say that it is too irksome or that they are not hungry enough. I think we should employ the same principle with regard to breathing and try to produce an "appetite" and increased assimilative capacity for fresh air. At first, the deep breathing may be partially forced; later, the breathing will have become involuntarily deepened from an awakened systemic desire for oxygen. It is to be understood that none but afebrile cases should indulge in breathing exercises, and then only upon the advice of the physician.

The object of these experiments at the State Sanatorium was to prove that in many cases of tuberculosis where moist râles and bacilli in sputum are still present, that breathing exercises could be indulged in without injury, and this fact was certainly established. There were no exacerbations during the period of deep breathing. There were several exacerbations during the period of shallow breathing. The patients either felt the same or slightly better during the deep-breathing period. They all preferred the deep to shallow respirations. The average gain in weight was greater during the period of deep breaths. In regard to the physical signs, etc., of the cases selected, one third were incipient, one third moderately advanced and one third advanced. The average length of stay prior to the test was four months.

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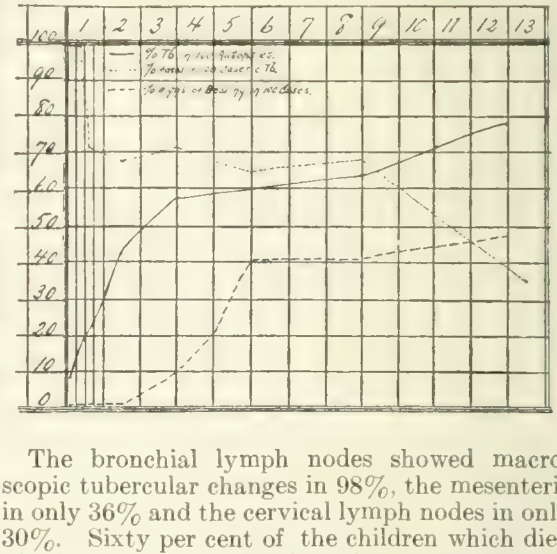
Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D.,
AND
JOHN LOVETT MORSE, M.D.

TUBERCULOSIS IN CHILDHOOD.

Hamburger and Sluka[1] review the autopsy reports of others in children and report their own autopsies in 401 cases. In 2,557 autopsies in children under fifteen years of life, including their own series, 689, or 27%, showed evidences of tuberculosis. The frequency of tuberculosis in different series of autopsies depends chiefly on the age of the children comprising the series, because tuberculosis is extremely rare in very early childhood. If only children over a year are included, the frequency of tuberculosis increases. When this is done the percentage in Müller's series is 44%, in Orth's 28% and in their own series 55%. In Müller's series the percentage of tuberculosis was 12 in the first year and 30 in the second, gradually rising to 75% between eleven and fourteen years. In their series the percentage was 6 in the first three months, 17 in the second three months and 22 in the second half year, giving a percentage of 15% for the first year; it was 42% in the second year and then gradually rose to 77% between eleven and fourteen years. They conclude, therefore, that the frequency of tuberculosis in childhood increases not only from year to year but also from month to month. While the frequency of tuberculosis increases, tuberculosis as a cause of death diminishes with the increase in age, the fatality of tuberculosis diminishing from month to month and year to year. All the children affected with tuberculosis in the first half year died directly as the result of the tuberculosis, while tuberculosis was the cause of death in only three fourths of those affected in the second half-year. After the first year the fatality of tuberculosis remains approximately the same. The relation of tuberculosis to the total mortality in the first quarter year was 6%; in the second 17%, in the third and fourth, 20%; in the second year 28%, and later 40%. It is evident that there is no tendency to healing in the first two years of life, this tendency first showing itself in the third and fourth years. It is not just, however, to conclude that healing never occurs in the first two years. It is evident, nevertheless, that the tendency to healing increases with increasing age. The following table is of interest:



The bronchial lymph nodes showed macroscopic tubercular changes in 98%, the mesenteric in only 36% and the cervical lymph nodes in only 30%. Sixty per cent of the children which died of tuberculosis died of tubercular meningitis. In almost every case the tubercular meningitis was merely a part of a general subacute or acute tuberculosis. Seventy-three per cent of all the fatal cases of tuberculosis showed active general tuberculosis. In only 27% was there the chronic general tuberculosis of the lungs, so common as the cause of death in adults. They believe that the diminution in the mortality from the seventh to the tenth year to puberty is due to the diminution in the frequency of meningitis. Figures from autopsies do not give a true picture of the conditions among living children. The best guide to this can be obtained from autopsies on acute infectious diseases. Figures obtained in this way from large series from different cities show a frequency of tuberculosis varying between

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[1] Hamburger and Sluka: Jahrb. f. Kinderheilkunde, 1905, vol. lxii, p. 517.

16% in Boston and 24% in Prague. In their cases the bronchial lymph nodes were involved 31 times out of 32 cases, but in only one case in which the bronchial lymph nodes were not involved were the apices of the lungs involved. In 12 of their cases the lungs showed tubercular changes. The mesenteric lymph nodes showed tuberculosis in four cases, and in one there was an ulcer of the ileum. In no single case was there evidence of a primary tuberculosis of the intestine.

TUBERCULOUS INFECTION IN EARLY CHILDHOOD.

In order to determine how often tuberculous infection occurs in infancy it is not sufficient to trace the anatomical findings at autopsy but biological methods must be used, as in this way the presence of tubercle bacilli may often be demonstrated in infants on account of the struggle of the organism against them. The author[2] used emulsions of tubercle bacilli prepared after Koch's method. His experiments were properly controlled. Ten investigations of blood from the umbilical cord gave negative results. Eighty children were studied. Nine were between one and two years old, the rest under one year. A positive reaction was obtained in 20 cases. Eight of these were over and 12 under one year. The significance of a positive reaction is that it demonstrates the presence of infection with tubercle bacilli and the beginning of a struggle against them. The agglutination of tubercle bacilli is not to be used for the demonstration of anatomical tubercular alterations as the reaction may be negative even when there is extensive tuberculosis. The results of his investigations are of great interest in connection with Behring's theory. The biological demonstration of a tuberculous infection in cases in which it cannot be demonstrated anatomically shows that infection occurs often in infancy, that it does not necessarily lead to anatomical alterations and that conclusions drawn from autopsies are not sufficient to answer the questions suggested by Behring. Salge believes that infection with tubercle bacilli occurs relatively frequently in infancy without always causing clinically and anatomically demonstrable alterations and that in no other way can these early infections be demonstrated than by biological investigation. Forty of the sixty negative cases were healthy, breast-fed infants under three months. A child more than one year old, in which the reaction was negative, had general miliary tuberculosis.

From these results the conclusion can be drawn that a positive reaction is almost always present in children over one year. This conclusion is, however, hardly justified because in this series only those cases were investigated in which a tuberculous infection was suspected. The negative results in all children under four months is striking. The only child in which infection was demonstrated during this period was handicapped by his father and had the opportunity of early infection from its father with whom it lived.

HEMOPHILIA IN THE NEWLY BORN, WITH REPORT OF A CASE.

Larrabee[3] first discusses hemorrhage in the new-born resulting from infection, and notes the differences between this condition and hemophilia. He maintains that hemophilia is very rare in the new-born, but that it does occur. He has collected 37 cases of hemophilia in the new-born, from literature, accepting as proof of the accuracy of the diagnosis, first, a distinct history of hemophilia in the family and, second, if a baby which had a hemorrhage at or near birth with recovery remained a bleeder in after life. Twenty-two of the babies died but there was a clear family history of hemophilia in all. In four of the cases the family history was unknown or negative but the child recovered and continued to be a bleeder. Eleven cases were positive by both criteria. Twenty-seven were males and six females. The mortality was 60%, or practically the same as that in hemorrhagic disease of the new-born. He finally reports a case with death in five days, and gives the family history and a chart for several generations.

PERIODIC VOMITING IN CHILDHOOD AND ITS RELATION TO APPENDICITIS.

This thesis,[4] inspired by M. Comby, contains fourteen observations which show that an appendicitis is hidden behind the symptom complex of cyclic vomiting more often than is believed. The subject well merits further study. In any case it is now necessary to give appendicitis a place in the etiology of periodic or cyclic vomiting. In some cases the cyclic vomiting and the appendicitis are undoubtedly merely coincident. Nevertheless, it is always safer to consider the appendicitis as the probable cause. The practical conclusion to be drawn from this thesis is that appendicitis should always be thought of when there is paroxysmal vomiting in a child, whether periodic or not.

In an editorial in the same number of the *Archives de Médecine des Enfants* the subject is considered rather more in detail, and eight other cases are reported.

A REPORT OF TWO CASES OF CONGENITAL ATRESIA OF THE RIGHT AURICULO-VENTRICULAR ORIFICE.

Kühne[5] reports two cases in detail and gives abstracts of six other cases collected from the literature. She concludes that the diagnosis is extremely difficult. Marked cyanosis, attacks of suffocation and edema, which are present from birth, suggest atresia of the tricuspid opening, if a loud systolic murmur is to be heard over the sternum which diminishes towards the base of the heart and towards the apex, and the heart is not enlarged to the left. Enlargement to the right does not exclude this lesion. If the systolic murmur is heard most distinctly in the second left intercostal space and at the same time there is an enlargement of the dullness to the right, then a pulmonary stenosis is more probable.

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[2] Salge: Jahrb. f. Kinderheilkunde, 1906, vol. lxiii, p. 1.

[3] R. C. Larrabee: Amer. Jour. of the Med. Sc., 1906, vol. cxxxi, p. 497.

[4] Granfelt: Thèse de Paris, July 17, 1905. Abstract in Archives de Médecine des Enfants, 1905, vol. viii, p. 763.

[5] Marie Kühne: Jahrb. f. Kinderheilk., 1906, vol. lxiii, p. 235.

THE SECRETION OF THE PAROTID IN INFANCY.

Moll[6] had the opportunity of collecting and investigating the pure parotid secretion from a parotid fistula in an infant of seven months. The pure secretion was as clear as water and flowed slowly drop by drop. The action of the ptyalin was easily determined. When added to starch solutions kept at 38° C. all the changes from starch to sugar could be demonstrated. Sugar was present after five minutes. He was unable to determine whether the rapidity and amount of the secretion was affected by psychical influences or sucking.

THE EFFECT OF DIPHTHERITIC ANTITOXIN WHEN INJECTED IN REPEATED ATTACKS.

Twenty-one (0.9%) and 3 (0.13%) of 2,323 cases of diphtheria treated in the Gratz Children's Clinic[7] had respectively second and third attacks of diphtheria. The intervals between the first and second attacks varied from one month to five and one-half years. The type of the second and third attacks was on the average no lighter than that of the first. The results of the serum treatment, both as to the effects and the amount of serum used and needed, were essentially the same as in the first attacks.

THE ETIOLOGY OF INFANTILE ECZEMA.

Hall,[8] who has carefully studied sixty cases of infantile eczema, with a view of learning, if possible, the etiological factors concerned, is of the opinion that neither dentition nor vaccination plays any part in the production of this disease; nor does he find any support for the theory of an inherited diathesis. He likewise finds the evidence in favor of the causal relationship of digestive disturbances or malassimilation to this variety of eczema insufficient; on the contrary, there is considerable evidence which is strongly opposed to the theory of such relationship. In most cases there was no history of digestive disturbances having preceded or accompanied the eruptions; neither rickets nor malnutrition was present in any considerable number of cases, most of them being breast-fed at the time of the appearance of the eruption. The author regards external irritation as being one of the most important etiological factors, and endeavors to show that the infant is exposed to many new surroundings which may act as irritants; that exposed parts are in almost all cases the starting point of the eruption; that the skin reflexes are more widely distributed and more easily excited in the infant than in the adult, and that most of the sixty cases observed began in the colder seasons of the year. He suggests that what is called eczema is a form of reaction of the neurocutaneous apparatus to external irritation, which is not present in most people.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Proceedings of the Annual Meeting, Held at Cleveland, Ohio, May 30, 31 and June 1, 1906.

The President, Dr. Albert Vander Veer, of Albany, N. Y., in the chair.

SURGERY OF THE LARGE INTESTINE.

Dr. George E. Armstrong, of Montreal, Canada, said the death-rate from cancer of the large intestine, as from cancer in other situations, was to be lowered by learning to recognize it in its early and incipient stage, rather than in devising heroic operative procedures. In addition to the usual indications of malignancy, as noted in the failing health and strength, attention was drawn to the fact that in a very large percentage of cases of early malignant disease of the intestine there was a regular daily rise of temperature amounting to two or more degrees, and it was pointed out that if this proved to be a general rule, it would, perhaps, be as valuable a sign of early malignant disease, as of incipient tuberculosis. Another symptom-complex referred to was the frequently recurring colicky pains associated with constipation; and when the cancer is situated in the rectum, to the sudden development of hemorrhoids with constipation in a patient who was previously regular. The harmless form of hemorrhoids usually developed as the result of prolonged and persistent constipation. The importance of a very thorough and careful examination was referred to, and in particular a careful search for the presence of tumor mass, the examination not being considered complete until carried out with the patient in varying positions. These tumors sometimes laid under the liver, or under the spleen, so that they could not be detected with the patient in the recumbent position, and yet became apparent when he stood up, or they might be discoverable one day, and the next be impalpable in any position that the patient might assume. A distinguishing feature of these tumors was their mobility, particularly mobile under the hand, and most marked when situated in the transverse colon and sigmoid.

The treatment of these cases was discussed from two points of view: (1) The relief of intestinal obstruction. (2) The radical removal of the growth. In the former it was pointed out that good judgment had more to do with the results than manual dexterity or knowledge of technique, and it was urged that in patients admitted to hospital with distended abdomen, stercoraceous vomiting, general peritonitis, and intestinal walls sodden and friable, nothing more should be attempted than drainage of the bowel through the appendix or an appropriately placed Paul tube. Many deaths occurred through trying to do too much under such circumstances. Ideal surgery should not be considered; it was a question of expedience and of temporizing, and of giving a patient time to recover from the toxemia present. Short circuiting of the growth and its removal at the same or some subsequent time was commended as a cleaner and more satisfactory procedure than colostomy, and as a method which offered opportunity for removal of glands. The delivery the growth, drainage of the bowel with a Paul tube subsequent removal of the tumor, and the establishment of anastomosis by Mikulicz's kentrotribe was commended as a safe procedure, but by no means ideal, as it was dirty, and did not generally permit thorough removal of glands.

In speaking of cancer of the rectum (the so-called high cancer of the rectum), a finger length from the anus, different methods were referred to. The perineal route for the removal of high cancer of the rectum was condemned, as giving insufficient access, either for the proper control of hemorrhage or the removal of the disease and glands. Good results have been obtained by the sacral methods. By this route the disease might be removed at a high level and the operation was comparatively bloodless. On the other hand, it opened up a large field which only too often became infected in spite of all precaution. When once it was infected, absorption took place, the patients had temperature, convalescence was slow, and sinuses and fistulæ might persist for an indefinite time. Then, again, it was sometimes very difficult to bring the upper end of the divided bowel down to the level of the skin without tension, and an end-to-end anastomosis of the pelvic rectum, uncovered as it was for the most part by peritoneum, was generally a failure. The combined abdominal and perineal method was advocated as the most conservative, the safest and most radical of the methods so far employed. Through the abdominal incision the operator could get as far above the disease as necessary. The glands might be thoroughly removed and involvement of the peritoneum or bladder, if present, might be recognized and dealt with as might seem best. The greater part of the operative work might be accomplished before the intestine was opened or the peritoneum exposed to infection. If there was sufficient of the lower end left after the removal of the disease, the intestinal canal might be restored by a sigmoidorectostomy, or an ileo-sigmoidostomy, and it went without saying that the canal should be restored whenever possible. If this was impossible, the upper end might be brought out through a colotomy wound, and a permanent artificial anus established. The lower end could then be separated by blunt dissection, pushed down behind the bladder, and the peritoneum closed over it much in the same way as after extirpation of the uterus. The lower end might then be removed by the perineal route. If the patient's condition was not good, the removal of the lower end of the rectum might be delayed for a few days, but in the four cases in which the author had removed high rectal disease by this method the patients had been remarkably free from shock, and had left the table in good condition. It was pointed out that the artificial anus in front, while possibly causing more mental distress than one situated behind was more easily cleaned and looked after, and made the patient more independent of nurse or valet. The more frequent use of the Paul tube in colotomies was advocated.

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[6] Moll: Monat. f. Kinderheilkunde, 1905, p. 307.

[7] Zucher: Wien. kl. Woch., 1905, No. 4.

[8] British Journal of Dermatology, July Aug., 1905. Abstract in Amer. Jour. of Med. Sc., vol. cxxxi, No. 2, February, 1906.

CANCER OF THE SIGMOID AND RECTUM.

Dr. Charles H. Mayo, of Rochester, Minn., said that with some modifications the curability of cancer was generally accepted. The disease was more rapidly disseminated in the young from their active lymphatics. The large bowel was the natural drier or absorber of fluids, but had a limited lymph drainage. Cancer of the colon was a disease in a removable structure which might remain essentially local for a long period. In the sigmoid, if the tumor was not removable, short circuiting the bowel was advisable. Low cancer of the rectum could be removed by the perineal route.

Those cases which were above easy reach were best removed by a combined operation, abdominal and perineal. If the muscular and nerve tissue could be preserved, the anal outlet was maintained; if it must be destroyed, an inguinal anus was made. If within (easy) reach and inoperable, curetting and cautery was preferable to colostomy.

In five years Drs. W. J. and C. H. Mayo (usually working together) had operated upon 26 patients by the combined method; 7 died from the operation or within one month; 10 cases operated too recently to be of value, but alive and well; 7 lived over one year, 5 alive now; 5 lived over two years, 3 alive now; 3 lived over three years, 2 alive now.

As there were only 4 who survived the operations made over three years ago, and 50% were alive and well, the results of cure were favorable, although the operative mortality was high.

CANCER OF THE COLON, WITH SPECIAL REFERENCE TO ITS DIAGNOSIS. TYPES OF OPERATION. METHOD OF AVOIDING FECAL DROWNING.

Dr. Willy Meyer, of New York, explained that his remarks would have reference to that part of the colon only which was situated between cecum and sigmoid. He pointed out the paramount importance of early diagnosis and timely operation, at the same time admitting the great difficulty in reaching such a consummation, chiefly on account of the usually latent development of the disease. He cited a case in which the patient had been apparently in perfect health up to within a few weeks of his death. The symptoms then developing pointed to malignant tumor of the anterior mediastinum. Post-mortem showed primary carcinoma of the colon at the lineal curvature, with metastatic involvement of the mediastinum. Every symptom, therefore, he stated, that justified the suspicion of colonic cancer, and every method that might help to determine the correctness or incorrectness of such a suspicion, must be welcome; all the more, as the prognosis of cancer of the colon was better than that of malignant disease in any other part of the gastro-intestinal tract.

Of the subjective symptoms, he considered of greatest value that of periodic, not always pain, contraction within the abdomen, so often noticed by the patient. It occurred usually in more or less the same locality, and, in an advanced stage of the disease, was frequently followed by a distinctly audible gurgling sound. He called this sign "subjective stiffening" of the gut, in contradistinction to the "objective stiffening" or tetanic recurrent peristalsis of the gut proximal to the seat of the disease, first described by Nothnagel as a visible and palpable sign. In one of his own cases, a carcinoma of the transverse colon, this "subjective stiffening" of the gut represented the only symptom complained of during many months. Among the objective signs, the author mentioned the appearance of a palpable tumor in 40% of the cases only, chronic circumscribed meteorism, the objective stiffening of the gut, above referred to, and the rather sudden formation of capillary angiomata and pigmented warts in the skin of the abdominal wall. The latter he considered an unfailing pathognomonic sign of cancer of the colon, provided the history and palpation pointed to this disease.

Dr. Meyer had personally observed this phenomenon in four of his cases.

With regard to differential diagnosis, the following conditions came principally into consideration:

(1) Tumor of the kidney, or floating kidney.

(2) Chronic cholecystitis or hydrops of the gall bladder.

(3) Retroperitoneal infiltrated lymphatic glands corresponding to the location of the splenic flexure, eventually secondary to a cancer of the pancreas.

(4) Benign intracolonic sessile tumors.

He believed the age of the patient to be no contraindication to radical operation, so long as his general condition was still good. In greatly debilitated patients, palliative operation only could, of course, be performed, but if done at an early stage of the disease, the objectionable artificial anus, otherwise unavoidable, might be obviated by way of a lateral anastomosis.

In discussing the different operations indicated for the various conditions found, Dr. Meyer pointed out the danger from the so-called "fecal drowning" which heretofore had been the *bête noire* of the surgeon, whenever more aggressive work was decided upon. He called attention ·to, and demonstrated, Kausch's esophageal narcosis tube, an apparatus designed for the purpose of overcoming this danger. It consisted briefly of two rubber balloons attached near either end of a stomach tube and communicating with each other by means of a thin rubber tube. The lower bulb, when empty, was easily introduced into the stomach; then the bulbs were inflated by means of an ordinary hand syringe and the whole was pulled upwards until resistance was met with, which indicated that the lower balloon pressed against the cardiac opening, thus rendering it impossible for any stomach contents to escape, except through the tube. Kausch had successfully used the instrument in three cases. This narcosis tube seemed a most simple and ingenious device, and would undoubtedly find very general application, after it had become better known to the profession.

The author stated that his personal operative experience with cancer of the colon within the section limited by his paper covered 11 cases, but that so far he had not had an opportunity of employing the narcosis tube just described. He added a brief record of his cases, all of which, with the exception of one, came under his care in a well-nigh hopeless condition.

THE SURGERY OF TUBERCULOSIS OF THE COLON.

Dr. L. L. McArthur, of Chicago, read a paper on this subject, in which he submitted the following propositions:

(1) Intestinal tuberculosis was far more frequent than had been in the past accepted. (2) Its primary nature in this situation was now admitted to be 5% by the pathologists, who also claimed that 25% of all human tuberculosis gained its entrance through the intestinal mucosa. (3) Either the "ulcerative" or the "hypertrophic" type of this disease was (at some time) amenable to surgical interference. (4) That interference should be either by excision or exclusion. (5) That surgical insult in these forms of intestinal disease was better borne than a like degree in any other (6) That early recognition by the internist and interference by the surgeon would eliminate a large proportion of cases now classified as tabes mesenterica.

Tuberculosis manifested itself in the intestine in two forms, — the ulcerative and the hypertrophic.

Individuals extremely prostrated with this affection were tolerant to extensive surgical insults, which in other ailments requiring similar surgical procedures proved fatal. Both of these varieties in his experience were amenable at times to surgery, the nature of which interference must be determined by the individual case. So many factors would take part in its determination that no set rule could be laid down. Practically, its surgery divided itself into either exclusion or excision, the choice being determined by the conditions obtaining in the given case. The exclusion might be partial or total.

Excision, generally speaking, was more applicable to the hypertrophic variety, and those cases of the ulcerative type, in which the condition of the patient and the area involved did not too strongly militate against it, while exclusion was reserved for those cases in whom the extent of the ulcerative area involved or the extreme debility of the patient made this simpler procedure appear the more advisable.

The term "partial" he applied to a side-to-side anastomosis of the intestinal tube above and below the diseased area, while a "total" exclusion implied a resection of the bowel wall above the disease, closure of the distal end, with implantation of the proximal end wall below the diseased area. It was distinctly to be understood that absolute occlusion was never practised.

Though the number of cases of tuberculosis of the large intestine demanding surgical interference in his practice has been limited, the regularity with which they had recovered had made him most hopeful for the future.

He presented from his records cases upon which he had operated, illustrating the points he emphasized in his paper.

Of the hypertrophic type he had had four, two in the ileocecal region, one at the hepatic flexure and one at the transverse colon. Of the ulcerative variety, four.

Brief abstracts followed, with the treatment decided on and the points of interest. Of these case histories he selected one each for illustration of the surgical points.

MYOMATA OF THE LARGE INTESTINE.

Dr. W. L. Estes, of South Bethlehem, Pa., said that true myomata of the large intestine were almost unknown. So-called myomata of the large intestines were histologically fibromyomata and they were practically always fibroleiomyomata.

The rectum was the part of the large intestine which in the great majority of the cases was involved, although there were a few cases on record of myomata of the cecum, of the ascending and of the descending colon.

Dr. E. Lexner, of von Bergmann's clinic, had classified myomata, and he had collected the largest number of cases the writer had seen. Lexner made three groups of these tumors, as follows:

Group 1. — Tumors which grew in the lumen of the gut. These appeared as pedunculated, roundish, or polyp-like tumors, of rather hard consistency, covered by mucous membrane. They might be removed by way of the anus. The pedicles should be ligated and then cut through.

Group 2. — Tumors which grew by a pedicle from the outside walls of the intestine, and which by their bulk impinged upon and might produce almost complete stenosis of the gut by their gradually increasing pressure. This class might involve any part of the large intestine, but were chiefly found in the upper part of the rectum. These tumors required a laparotomy for their removal.

Group 3. — Tumors which grew from the rear of the rectum and which, by their bulk, pushed the rectum forward and filled up the cavity of the pelvis. These tumors were easily mistaken for ovarian, and other common tumors of the pelvis. They required sacral exsections or parasacral incisions for their removal.

The writer suggested the possibility of another, or fourth, group. Tumors in this class resulted from inflammations. While they were really hyperplasias, they might, but very rarely, develop as circumscribed tumoid masses in the walls of the gut, which by persistent hypertrophic thickening might cause stenosis of the gut. The sigmoid flexure was the part of the large intestine involved by this class of tumors.

The writer gave the history of a very remarkable case of stenosis of the sigmoid flexure, which resulted from enormous and symmetrical hyperplasia, chiefly of the muscular coats of the gut, and which formed a well-marked tumor of the intestine. The intestine was strictured, almost entirely closed, within the area of the tumor, not above it nor below it, and the stenosis was produced by the bulk of the hyperplastic muscular layer. Histologically, it was classed by the pathologist as a myofibroma.

Prof. J. Rotter, in a monograph on "Inflammatory Strictures of the Sigmoid," gave credit to Graser, and quoted his (Graser's) investigations and conclusions as to the pathological steps involved in the production of ordinary inflammatory strictures of the sigmoid.

These writers did not explain any development such as occurred in the writer's cases, nor did they furnish any case of well-marked symmetrical tumor that was produced by the inflammatory conditions they described. The writer had not been able to find any mention in surgical or pathological literature of a case similar to his. He believed, therefore, that his case was very rare, and that it indicated that possibility of a fourth class of tumor of the large intestine, which belonged to the myomatous groups.

These tumors required a laparotomy for their removal. On account of the very numerous and dense adhesions, the operation for their removal was an extremely tedious and difficult one.

THE SURGERY OF CARCINOMA OF THE UPPER PORTION OF THE RECTUM AND THE SIGMOID COLON, WITH SPECIAL REFERENCE TO THE COMBINED SACRAL AND ABDOMINAL OPERATION FOR THE RESECTION OF THESE TUMORS.

DR. **JOS. C. BLOODGOOD**, of Baltimore, Md., stated that sufficient time had elapsed to clearly demonstrate that resection had accomplished a certain number of cures for carcinoma of the stomach, small and large intestines. In the majority of these cases the hope of future progress depended more upon earlier recognition than upon improvement in operative technique. The technique of gastrectomy for carcinoma was most satisfactory. The only partially settled problem was in regard to the extent to which glandular dissection should be carried. At the present time the majority of authorities favored a restricted glandular operation in view of the higher mortality of the more extensive dissection and the slight probability of a cure if these more remote glands were involved. With carcinoma of the small intestine there was not sufficient experience to formulate positive deductions. Malignant epithelial tumors from the ileo-cecal valve to the anus were comparatively of frequent occurrence. When the tumor was situated in that part of the large intestine above the promontory of the sacrum the entire operative manipulation was performed within the abdomen. These tumors which arose from the mucous membrane of the large intestine showed little tendency to extend beyond the peritoneal coat, except at the mesenteric border. Adhesions due to the infiltration of the epithelial growth through the peritoneal coat to neighboring viscera were late complications. In planning for the complete extirpation of these growths one should resect a very generous portion of the apparently uninvolved intestine on each side of the palpable tumor, because infiltration of the new growth along the submucosa beyond the open ulcer was a common occurrence. The next most important step was to include with this portion of the bowel a large area of mesocolon, whether the glands were palpable or not.

In selecting the point for the division of the bowel above and below the tumor one should have in mind not only the complete removal of the tumor, but to select a point for division which should have, after the resection of the mesenteric area, a proper blood supply. The experience of any surgical clinic and the literature showed a comparatively large number of cases in which the tumor had every appearance of curability, but in which an operative death due to gangrene of one or both ends of the resected intestine marred the result. The decision as to the method of suture after the resection was a somewhat difficult one. As a rule, closure of the two ends with a lateral anastomosis was the safer procedure.

As the tumor of the colon approached the promontory of the sacrum new problems arose. In some instances there was sufficient healthy bowel below the tumor to allow a resection and suture within the abdomen. In other cases, on account of the position of the tumor, or its infiltration anal-wards, the resection could only be completely accomplished by a combination of an abdominal and extra-abdominal or sacral incision.

The paper was concerned chiefly with the latter group of tumors.

The literature on this subject with a pretty complete historical review appeared in 1904 in the *Deutsche Zeitschrift für Chirurgie* (Band lxxiii, p. 229) by Ito and Kunika, and by Goullioud and Faysse in *Revue de Chirurgie* (1905, Vol. xxxi, pp. 711 and 707). As far as he had been able to ascertain, these two articles covered the most important contributions to the literature.

In the past surgeons had been concerned chiefly with the extirpation of the affected bowel with a generous portion above the tumor, and below the tumor the extent of the removal had varied from 4 cm. to the entire rectum, including the sphincter. In addition, they had made very extensive dissection of the tissue between the rectum and the sacrum.

These surgeons had been content either with an inguinal colostomy or a sacral anus.

In approaching his cases since 1904, he had endeavored not only to fulfill the requirements of a complete removal of the malignant disease, but to attempt, after its removal, a restoration of the continuity of the bowel by an end-to-end anastomosis.

In his first case in November, 1904, he was able to perform the complete resection of a carcinoma situated just above the promontory of the sacrum entirely within the abdomen. The condition of the patient, however, forbade at that time an attempt at suture. At the present writing, eighteen months since operation, the patient was content with the colostomy. In a second case, in July, 1905, it wasnecessary to finish the resection through a sacral incision. In this instance it was possible to save, with a good blood supply, eight inches of the lower end of the rectum, which rendered an end-to-end suture in the sacral wound possible. The result at the present time is unusually satisfactory. In the third and most recent case it was possible to resect and suture entirely within the abdomen.

Compared with cases published, these three tumors would have received the same complete resection, but an inguinal colostomy or sacral anus. In two of his cases complete restoration of the continuity of the bowel was accomplished. In the first case this procedure would have been attempted had the condition of the patient allowed it.

A careful study of the cases in the literature would justify the following criticisms: (1) Colostomy had been performed too frequently as a primary operation. He believed that colostomy was not indicated unless the patients were first seen in the condition of an acute obstruction, or their condition was so critical from chronic obstruction that a prolonged operation was contra-indicated. If possible, the entire operation should be performed at one sitting. (2) It was unnecessary to ligate the vessels so far from the mesenteric border of the colon. Resection of the glands up to this point was not indicated. If they were involved, his experience demonstrated that the condition was hopeless for an ultimate cure. The disadvantage of ligation of the vessels so far from the colon was due to the fact that, after such a ligation, a more extensive resection of large intestine was necessary in order to leave bowel with proper circulation. (3) Too much bowel below the tumor was removed.

If one restricted the resection of the large intestine above and below the growth to that necessary only for the complete removal of the disease, and ligated vessels as they were met in the proper dissection of the mesentery with its glands and the fat between the rectum and the sacrum, it would be possible in a large number of cases to restore the continuity of the bowel by an end-to-end suture.

The pathological examination of a number of specimens and the zone of mesenteric involvement which he had made apparently confirmed the statements in the previous paragraphs. That was, in this somewhat restricted operation the new growth was given sufficient margin and at the same time the circulation of the remaining portion was not impaired, and in the majority of cases restoration of continuity.

When the tumor involved the rectum below the promontory of the sacrum, at which position the posterior portion of the bowel had no peritoneal coat, it infiltrated quickly through the wall of the bowel into this tissue. The complete removal of all the tissue between the rectum and sacrum should never be restricted. There was every evidence to indicate that this was accomplished by the combined method better than by the sacral route alone.

The author then discussed his cases.

A SERIES OF CASES OF MALIGNANT GROWTHS, WITH A CLINICAL STUDY OF THE POSSIBILITIES OF CARCINOMA AND SARCOMA APPEARING IN THE SAME PATIENT.

This was the title of the president's address, delivered by **Dr. Albert Vander Veer**, of Albany, N. Y., which was a departure from the usual historical review of the progress of surgery.

For many years he had had in mind the possibility of the duality of malignant diseases, that is, as to carcinoma and sarcoma presenting in the same patient, and as to the genesis of many cases appearing in the same family. With these thoughts in mind, he presented the following observations:

He was first attracted to this subject by the case of Mrs. P. R., aet. fifty-seven, who presented March 20, 1870, with acute carcinoma of the left breast, and who, while being prepared for operation, was suddenly seized with a convulsion, ending in immediate death. An autopsy revealed a tumor from the dura, extending outward, ulcerating nearly through the cranium, and which caused deep pressure upon the brain substance. At autopsy, no other growths were found in the brain, and, aside from the left breast, all other organs were in a healthy condition. A microscopical examination made of the brain tumor at the time, together with the microscopical appearances, classed it as a sarcoma. The microscopical examination of the tumor from the breast was positively that of acute scirrhus or carcinoma.

Years passed by and though many cases were observed, giving all the phases of malignant growths, yet no picture presented itself like that carried in his mind of carcinoma and sarcoma appearing in the same individual.

In May, 1880, he was called to see Miss C. J., aet. fifty. She had passed her menopause without any complications, but for nearly two years had noticed a growth in her left breast, which she had shown to no one until now, when the ulcerative odor had attracted attention, and, on examination by her physician, he found a carcinoma far advanced. There were large masses in the axilla and in the supra- and infra-clavicular spaces. No operation was possible, the patient dying June 10, 1880, from sepsis. There was no autopsy.

Her family history was of interest. Her father, aet. seventy-three, had recently died from an extensive and long-standing epithelioma of the lip and face, and which had involved the glands of the neck. He had never permitted treatment of any kind or in any form. Mr. J. had previously lost a brother, at the age of fifty-six years, with some form of malignant disease of the foot, and who had been ill for a long time. Otherwise, Miss J.'s family history seemed excellent. Her mother, aet. seventy, was in good health and gave a good family history, but died later from some kidney complication.

Some time after the death of the first and eldest sister, he was called to see the second sister, Miss D. J., aet. fifty-three, with a good personal history, and who a few months previously had noticed a tumor in her left breast. On examination it was plainly a case of movable, acute carcinoma, without axillary complications. An immediate operation was advised and agreed to. The operation was very thorough, extending far up in the axilla, but not removing the pectoral muscle. She remained well for about fifteen months, when a few nodules appeared in the cicatrix, which ulcerated, giving her little annoyance, but within a short time, Sept. 9, 1886, she died from metastases of the liver and stomach. No autopsy was held. Examination of the tumor removed classed it as a case of acute scirrhus. The lessening of her sufferings, as compared with her sister's case, made a very profound impression upon her family and friends.

In May, 1889, he saw Mrs. E. J., aged fifty, a fourth sister, in age, married, mother of one child, whom, at birth, she had nursed for a few months without any mammary complications. Several weeks previous to his visit she had noticed a tumor in her left breast, associated with sharp, lancinating pains, retraction of the nipple, and all the symptoms which she had noticed in her sisters' cases. She was greatly disturbed, but, with her husband, readily agreed to a prompt operation, which he made equally as thorough as in the last case, doing it at the home of the patient. She remained well until January, 1903, when he was again summoned to see her, as she had, a few days previously, called her physician's attention to marked abdominal pain. Upon examination it was very evident she was suffering from an ovarian cyst. She entered the Albany Hospital at once and at operation a multilocular cyst was found connected with the left ovary. Pathological examination of the tumor removed demonstrated it to be an ovarian cyst with secondary papillomatous and carcinomatous degeneration. Right ovary and appendix normal.

Following this operation Mrs. J. gained greatly in health and flesh and made a European trip.

In May, 1904, he was again called to see her. Two weeks previously she began to suffer with severe abdominal pain; abdomen tender to touch, and some slight nausea. She entered the Albany Hospital, Jan. 25, 1904, and after preparation he operated on the morning of the twenty-sixth. Incision revealed a large cyst connected with the right ovary. This was aspirated, but cyst wall was found so thoroughly adherent to the surrounding tissues, including appendix, head of cecum and small intestines, that it was found impossible to remove it entirely. The greater portion was excised and laboratory examination revealed the same general characteristics as the previous tumor of the left ovary.

She was discharged from the hospital, Feb. 19, 1904, and improved after this, being quite comfortable until within two weeks of her death, which occurred Oct. 20, 1904. There was no autopsy, but every evidence of the mesenteric glands and stomach being involved. The breast scars showed no return of the growth and in every way she had enjoyed perfect use of her arm.

In April, 1897, he saw, in consultation, Mr. H. J., aet. fifty-six, husband of Mrs. E. J., the case just reported, who presented a good family history. He gave a record of an enlargement of the right testicle, sarcomatous in character, and later confirmed by the pathologist. A thorough operation was done for removal of the diseased organ, and he remained well for years. There was no return of growth in cicatrix, nor metastasis, as shown at the autopsy. Mr. J. died May, 1900, of arteriosclerosis and great dilation of heart.

In September, 1897, he had seen the third sister in this family, Mrs. F. J., aet. fifty-one, and mother of six children. At that time she called his attention to a sore she had noticed under right breast, in the flexure of the skin, which had existed for several months, and which frightened her greatly. It had all the appearance of a true epithelioma. She begged not to have the knife used and he treated it with Vienna caustic and arsenious acid paste. The ulcer healed kindly and remained well, she passing her menopause without any growths appearing elsewhere.

From May, 1903, he had this same patient, Mrs. F. J., under observation for prolapse of the uterus, second degree, with a constant leucorrheal discharge, occasionally tinged with blood. He made a number of careful examinations and was unable to locate any malignant growths. Under the use of douches and the wearing of a rubber ring pessary she was made very comfortable. She begged of him not to mention an operation, saying she was "too old," and then "you know what our family history is." October, 1905, she noticed a small tumor in left breast. After examination he had not the courage to tell her his worst fears; however, he kept close watch of the growth, and on Jan. 10, 1906, insisted upon an immediate operation. Passively she consented, and the operation was done at the Albany Hospital, three days later. She was now sixty years of age. He did a thorough dilation and curettement of the uterus, repair of perineum, removed several hemorrhoids, and while under ether made a complete examination of pelvis and abdomen. There was no abnormal condition present. He then removed the left breast and contents of axilla.

Microscopical examination at the laboratory showed the case to be carcinoma of the breast, with metastasis to lymph nodes; chronic endocervicitis, with papillomatous proliferation of surface epithelium. Patient made a good recovery, normal in every respect.

In May, 1896, Miss G. J., daughter of Mrs. F. J., the third sister, whose case he had just reported, met with a severe accident, accompanied with concussion of the brain. She, however, made a good recovery. Later she passed through a severe attack of typhoid fever. Patient had always been a strong, bright, active girl, fond of outdoor sports. Not long after her convalescence she developed epileptic seizures, at times very serious, then better. She lingered some years, and died May 15, 1900, with marked symptoms of tumor of the brain.

He had transferred this patient to the care of a specialist; was absent from the city at the time of her death, and had been unable to get a copy of the postmortem notes; however, he had been told that the case was considered to be one of sarcoma of the brain, or a glioma.

In the study of these cases the thought of house infection was to be considered. The first two sisters were born in the house where the uncle passed much of his time, when suffering from malignant growth of the foot. The last two were born in the house and lived where the father was attacked with epithelioma of the lip and face, and was ill for a long time. Each of the houses referred to was old at the time of the birth of these children. One is yet standing, but in neither has he been able to learn of any more or other cases of malignancy.

It was somewhat interesting to note that of the four sisters it was the left breast implicated in each case.

The writer had a record of and had seen a number of cases of carcinoma of the breast in females who had non-malignant fibroids of the uterus, and in operating for the former, malignancy did not develop in the latter. He had also operated for both conditions, when the strength of the patient would admit, always bearing in mind the sympathy between these organs in malignancy of either.

As far as possible, the writer had looked up the literature, which was exceedingly meagre, bearing on the subject of this paper, and presented extracts (having in mind the etiology, pathology and possible prophylaxis) from the admirable work of Professor Jensen, of Copenhagen, to whom was awarded the Walker Prize by the Royal College of Physicians and Surgeons.

SOME EXPERIENCES IN INTRACRANIAL SURGERY.

Mr. Charles A. Ballance, of London, England, said that surgical intervention was, at present, the only remedy for certain intracranial diseases, but only too generally the same apathy prevailed in adopting this remedy as was prevalent some twenty-five years ago in operating for analogous diseases in the abdomen. He offered some remarks suggested by his own experience in operating for tumor of the brain, abscess of the brain, subdural hematocele, meningitis and hydrocephalus interna.

Tumor. — Prominent among the obstacles to successful operation for intracranial disease, and particularly for brain tumor, was the difficulty of making a precise diagnosis at an early stage of the disease.

The diagnosis of intracranial disease was, speaking generally, a far more complex problem than that of intra-abdominal disease, and, moreover, within the skull an exploratory operation could be conducted in the same rapid and complete manner and with as little serious risk as in the abdomen.

The maxim that diagnosis must precede operation was only true of those diseases the signs, symptoms and course of which were fully comprehended. When the early clinical manifestations of a disease were ill-understood and when danger attended delay, the surgeon was content to act upon a provisional diagnosis. Many lives were thus saved and diagnosis became perfected.

Another point of practical interest was that a highly cellular tumor of the brain was not necessarily very malignant. This was true not of brain tumors only, but of tumors of other parts of the body; thus a large cellular carcinoma mamma might prove less malignant than a small atrophic scirrhus with few cellular elements.

In 1903 he drained a large gliomatous cyst in the left frontal lobe of a man under the care of Sir William Gowers. The symptoms were relieved, but recurred two years later. He then removed a large mass of tumor from the same region. The patient left the hospital well and proposed to resume his work.

There was one point to which he drew attention, namely, the bulging of the occipital fossa in cerebellar tumor in childhood.

In 1889, he removed a tumor from the cerebellum of a child, aged three and one-half years. The main localizing sign was a bulging occipital fossa.

Last year, a boy, six and one-half years, was admitted to his ward in the Great Ormond Street Children's Hospital, with signs of cerebellar tumor. The right cerebellar region was slightly more prominent. This sign, anatomical in this case, led to exploration on the wrong side. The symptoms were equivocal. Shortly, these were: Paroxysmal headache, vomiting and cerebellar gait; unsteadiness in standing, but without marked tendency to fall to one side more than to the other; deviation to the right in walking and in running; inco-ordination of limbs to an equal extent on the two sides; optic neuritis on both sides, most marked on the left. The attitude of the head was that described by Batten as corresponding to left cerebellar tumor, but it was well-known that the attitude of the head was not conclusive as to the site of the disease. This case presented an interesting study in its demonstration of how an erroneous first impression worked out to a false conclusion and in this particular instance to ultimate disaster, as although the cyst was drained at a second operation, the child did not survive. In the ward were two other cases:

Male, aged four years and ten months. Left occipital fossa bulged considerably. Inco-ordination of left upper limb. Large tuberculous tumor removed. Child now well.

Female, aged seven years and ten months. No bulging of occipital region. No regional diagnosis possible. Right cerebellar region first explored; then left. Large tuberculous tumor removed. Patient made good progress for three months. Death then occurred suddenly from hemorrhage, possibly scorbutic in origin, tearing up the whole left cerebral hemisphere.

To prove that operation for cerebellar tumor in the adult might be completely successful, he mentioned that in 1894 he removed an encapsulated fibrosarcoma from the right cerebellar fossa of a woman, aged forty-nine years, and she was alive and well now.

Abscess of Brain. — It was now generally recognized that an abscess in the brain should be treated like an abscess elsewhere. In most cases of slowly spreading infection from chronic disease adhesions occurred at the site of infection, binding together dura, arachnoid, pia and cortex.

Subdural Hematocele. — Satisfactory results were obtained by removing such cysts. In a case of his, already published, a cyst, 7 by 4½ by 1½ in., was successfully removed. He had since met with three other cases. In one of Prescott Hewitt's cases the patient, a boy, received a blow on the head from a cricket ball. He lived for fifteen years, during which time he suffered from intermittent insanity.

Meningitis. — He made some remarks about meningitis serosa, a condition which often arose when pus collected outside the dura, as, for example, in some cases of acute mastoid suppuration. The symptoms were: Rise of temperature; slowing of pulse; sluggish pulse; sickness and drowsiness. All these symptoms might be promptly relieved by lumbar puncture. The withdrawal of fluid might prevent the meningitis going on to suppuration, just as the removal of fluid from the pleura by the aspirator relieved the lung from pressure and might prevent the pleurisy going on to empyema.

Hydrocephalus Interna was met with in infants as a congenital condition or as the result of posterior basal meningitis; the congenital form had resulted from intra-uterine meningitis.

There were two methods of dealing with hydrocephalus: (1) Intradural drainage. This could be carried out through the lateral angle of the anterior fontanelle, or the descending cornu of the lateral ventricle on the right side might be opened by the ingenious method of Keen. A fine tube, bent at right angle, made of gold and iridium, or of pure platinum, should be used. (2) Ligature of both carotids. The secretion of fluid might be lessened by ligature of one or both common carotid arteries. This could safely be done in hydrocephalic infants, in whom the blood supply to the brain stem was of much more relative importance than that to the cerebral substance and the choroid plexus.

He had had successful cases by both these methods.

Tuberculous Meningitis. — He had published a case in which the removal of tuberculous disease of the temporal bone cured commencing infection of the meninges, as evidenced by headache, vomiting and squint.

He was convinced that the treatment of intracranial disease had been too long incrusted with conventionality. Cases of brain disease requiring surgical relief were numerous and widely distributed, but those who operated on them, especially on brain tumors, were few and far between. Not so long ago the same was true of acute abdominal diseases, but now the surgery of acute abdominal disease was successfully practised by the great body of surgeons. Until this stage in the history of brain tumors had been reached many remediable cases must go unrelieved.

(To be continued.)

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Recent Literature.

The Dynamics of Living Matter. By Jacques Loeb, Professor of Physiology in the University of California. Illustrated. New York: The Columbia University Press. The Macmillan Company, Agents. London: Macmillan & Co. 1906.

In this volume Professor Loeb has elaborated a series of eight lectures given at Columbia University in 1902. The aim of these lectures was to present the result of his researches on living matter, and in accomplishing this end the lectures have been so far amplified that a somewhat complete survey of the field of experimental biology is given. The subjects taken up in the book concern the general chemistry of life phenomena, the general physical constitution of living matter, some physical manifestations of life, the rôle of electrolytes in the formation and preservation of living matter, the effects of heat and radiant energy upon living matter, heliotropism, facts concerning tropisms and related phenomena, fertilization, heredity and the dynamics of regenerative processes. It will be seen from this that Professor Loeb has gathered together in concise form the results of the work upon which he has long been engaged. It should reach a wide circle of readers as an original and valuable contribution to the subtle subjects of which it treats, although it may not carry conviction in all its details.

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STANDARDS OF MEDICAL EDUCATION.

In a recent address before the Medical Society of South Carolina the president of the society, Dr. Edward C. Register, of Charlotte, brought to the attention of his hearers certain matters which should be of interest to the profession at large. The address concerned itself with the standard of preliminary education for students of medicine. It appears that in 1858 the first medical legislation in the state of North Carolina was a law creating a board of medical examiners and entitling only licensed physicians to testify as experts in court. In 1885, the law was amended, making it a misdemeanor to practise medicine in the state without a license, and in 1897, all applicants for examination before the medical examining board were obliged to have a diploma from a reputable medical school. These requirements, however, apparently did not sufficiently raise the standard for admission to medical practice. A large percentage of the applicants for license were not primarily prepared to begin the study of medicine. Many had sufficient professional attainments, but were defective in the ordinary branches of knowledge. In other words, uneducated men were being admitted to the medical profession. In view of these facts, Dr. Register makes the following pertinent statement:

> "The medical profession of North Carolina, if it wants to keep in line with other states and other countries, ought to undertake to correct these defects in our system; legislative changes should be advised. We need, and it is practical for us to have, medical laws created that will provide that it shall be essential for a young man beginning the study of medicine, or before he can obtain his license, to have an essential, non-professional knowledge, certainly to the point where he can speak and write the English language correctly."

It is clear that this is a perfectly correct statement of a most unfortunate condition. Medicine has unquestionably suffered more than other professions in admitting to its ranks men without education who still were able to conduct a successful practice on its financial side. This, no doubt, has been in great measure due to the character of the studies required for the attainment of a medical degree. There are two fundamental ways out of the difficulty, both of which have been practised in this country. The first is to make the medical course itself so difficult that none but properly prepared students can successfully pass the examinations. By this means the unfit students are gradually eliminated during the progress of the medical course. The method is, perhaps, in a measure unfair to the student, and it is certainly a burden to the medical school to admit totally unfit students even for a relatively short time. The other main method naturally is to so raise the standard of the entering requirements that only those who are capable of mastering the strictly professional work shall be admitted to the medical schools. This method has been adopted by a number of our leading universities through the requirement of a bachelor's degree, or an equivalent evidence of preliminary work done before entrance to the medical school is permitted. Whether or not this is going too far in the attempt to purge our medical schools and the profession of unfit men is open to question; but there can be no doubt that this method fully does away with the situation which Dr. Register bewails in South Carolina. Dr. Register, for example, believes that the demand of a preliminary college course is not practical and is destined to do harm.

It is in general perfectly clear that the problem is an extremely complex one, and it is also reasonably clear that in this country an absolutely uniform standard of preliminary requirements cannot be maintained. It has been proved possible, and probably desirable, in Baltimore, Boston and certain other great centers of medical education, to demand a preliminary college course. Such action in North Carolina and in many other Southern and Western states would be unwise and presumably detrimental to the best progress of medicine in those localities.

The problems presented in various parts of the country are widely different, and unreasonable as it may at first sight appear that we can have two or many standards in a single profession, it is, nevertheless, true that from a practical standpoint, unless minor medical schools are to be entirely eclipsed, less rigid requirements in certain localities must still be practised for many years to come. This apparently is Dr. Register's idea in North Carolina. He wishes the standard raised, but not to a point prohibitive of obtaining medical students.

This fact should not in the least be a cause for discouragement. Although it is ultimately desirable that a definite and relatively fixed standard of medical education, both preliminary and during the medical course, be established throughout the country, it is inevitable, and we think desirable, that each section of the country should work out its own problems, always looking toward an improved standard, but not to a self-destructive degree. If the general tendency is upward, there can be no doubt that ultimately a satisfactory situation will be reached. The men of poor education will inevitably go to the wall, and their educationally more favored comrades will usurp both the practice and the influence in the profession which is their just due. In the meantime it is desirable that no injustice be done.

GROWTH OF MEDICAL LIBRARIES.

ONE of the striking ways in which medicine has developed in this country during the past twenty years is through the increase in the number and efficiency of libraries devoted to the medical sciences. Not many years ago, what few medical books were available were to be found in general libraries where, for obvious reasons, physicians at large were not likely to resort in great numbers. This has now been wholly changed and there is a very large number of libraries in our large cities devoted solely to the uses of physicians. Some of these libraries have their own buildings, and many of them, although not separately housed, have all the advantages which come from concentration. The medical library, therefore, as an institution has evidently come to have a very definite place. It is significant that within the past few years the Boston Public Library has transferred many medical books and periodicals to the Boston Medical Library on the ground that they could be more conveniently and advantageously used there than in a great general library such as the Boston Public Library.

We have before us a brief statement from Dr. Eugene F. Cordell, librarian of the medical library of the University of Maryland, which illustrates the active work which is being done, not only at that library, but also at many others throughout the country. The library of the University of Maryland has an interesting history. It was founded in 1813, and is connected with the department of the history of medicine in the university, the professor of that chair, now Dr. Cordell, being the director of the library. The library now contains 6,280 volumes, 1,080 of these having been added during the year. Forty-six journals are regularly received. There are also 4,200 pamphlets, of which 200 have been added during the year. There are 120 registered members, but the library is open throughout the year to all readers, and students of the university are given special privileges. A significant addition to the library during the year was the collection of the late Prof. George W. Miltenberger, numbering 949 volumes, many of great value.

This is but an example of what other libraries are also doing, and there is no reason to doubt that the rank and file of the medical profession will come more and more to look upon these libraries as centers of information, thereby inculcating a habit of consulting original sources in the prosecution of their work. There is small reason to doubt that the libraries are increasingly used, and that much work requiring references to literature is produced which would be quite impossible were books of reference not ready of access. Medical libraries, therefore, however small their beginnings may be, should receive the earnest support of all those physicians who look upon medicine as something more than a trade and who wish to surround it with that element of scholarship which only books can bring.

EXPERT TESTIMONY IN CRIMINAL CASES.

IN view of some recent developments in New York, tending to throw more or less discredit on the present system of employing insanity experts in criminal cases, there has developed in the community a renewed agitation in favor of a standing commission of expert alienists, whose province it shall be to decide as to the mental condition of prisoners on trial. It is very problematical, however, whether such agitation will result in any definite action in the near future.

In a recent interview Dr. Frederick Peterson, who was for some years at the head of the New York State Commission in Lunacy, is quoted as expressing complete dissatisfaction with the existing system of calling expert witnesses. He declared that it tended to bring those acting in this capacity into such disrepute that the best men were often disinclined to accept retainers. "I think," he went on to say, "that some system by which the question of the insanity of a prisoner could be referred to an impartial commission of medical experts, appointed by the court, would be an excellent thing. In France and Germany there are lists of experts from whom the court can appoint a commission, but in this country and England there is nothing of the sort. Experts are called only in cases where there is a certain amount of doubt, and it is only human that they should be inclined to take the view of the side which retains them. The experts on either side can answer in diametrically opposite ways honestly enough, because they are being questioned, not about the real man in the dock, but about two different Frankensteins called forth by counsel to suit their own purposes. No wonder the twelve good men and true are confused. A regular commission of experts would leave hypotheses alone."

This question is perennial. There are from time to time evidences of a possible solution, but so long as our jury system remains, it is somewhat unlikely that the courts will feel justified in assuming the responsibility of the appointment of commissions of experts, however desirable it may seem to those in authority. We have long been of the opinion, and we have no doubt, as also expressed by Dr. Peterson, that the opinion is widely held, that justice would be as well subserved and with far less loss of dignity were many disputed cases settled by a qualified commission. The present system is unquestionably defective, at least from the medical standpoint, and places a burden upon a conscientious physician which he should not be called upon to bear. Agitation and protest are no doubt useful, and may ultimately lead to some fundamental reform. At present, however, the situation shows small evidence of amelioration.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, July 18, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 39, scarlatina 19, typhoid fever 16, measles 25, tuberculosis 52, smallpox 0.

The death-rate of the reported deaths for the week ending July 18, 1906, was 18.19.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, July 14, 1906, was 174, against 201 the corresponding week of last year, showing a decrease of 27 deaths and making the death-rate for the week 15.07. Of this number 90 were males and 84 were females; 168 were white and 6 colored; 108 were born in the United States, 63 in foreign countries and 3 unknown; 38 were of American parentage, 119 of foreign parentage and 17 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 34 cases and 3 deaths; scarlatina, 26 cases and 1 death; typhoid fever, 12 cases and 2 deaths; measles, 36 cases and no deaths; tuberculosis, 41 cases and 15 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 19, whooping cough 4, heart disease 23, bronchitis 3 and marasmus 8. There were 8 deaths from violent causes. The number of children who died under one year was 39; the number under five years 54. The number of persons who died over sixty years of age was 35. The deaths in public institutions were 53.

There were 2 deaths and 1 case of cerebrospinal meningitis reported during the week.

Retirement of Dr. Thomas B. Shea. — Dr. Thomas B. Shea, who has efficiently served as a health commissioner of the city of Boston for a number of years, has resigned his position and has accepted a position which he formerly held of chief medical inspector. Ex-alderman Michael W. Norris has been designated by Mayor Fitzgerald to take Dr. Shea's place on the Board of Health.

Smallpox on an Incoming Steamer. — Several persons suspected of having smallpox arrived in Boston July 15 on the steamship *Cymric* from Liverpool. Precautions were at once taken by the City Board of Health and the suspects removed to Gallop's Island. Late reports show that two persons were apparently suffering from incipient smallpox, and that certain others, which were at first suspected, show no further sign of the disease. Those who are still detained at quarantine are both young immigrants, one a Turk and the other a Swede.

Water Investigation. — According to the *Monthly Bulletin of the Connecticut State Board of Health*, on account of the small appropriation made at the last session of the state legislature for investigation of the pollution of streams and natural waters of the state, the Board of Health was unable, on the first of January, 1906, to renew the contract with Professor Smith, of the Yale Medical School, for water analysis. Therefore, during the first six months of the year, the Board could make no regular examination of reservoirs. The investigation was practically confined to special analyses of water, mostly well water, sent in by the health officers of different towns. The Board has, however, made arrangements, beginning July first, to have these analyses carried on under the direction of Professor Conn, of Wesleyan, at the state bacteriological laboratory, in Middletown. As the laboratory is in continuous operation, the additional work does not involve any great expenditure, and the board will be enabled to resume the routine examination of reservoir water and to accomplish much more with the appropriation available. It has been the custom to examine monthly a certain number of reservoirs, and the following year to make analyses of those in other parts of the state, and thus all the reservoirs have been, in turn, investigated. Special examinations of well and other waters are made on the application of the town health officers only, subject to the approval of the county health officers. In future these applications should be forwarded directly to Professor Conn, who will send to the applicant proper receptacles for the water to be analyzed and full directions for collecting it. Professor Conn will have as his assistant Mr. James A. Newlands. Mr. Newlands has studied at the Massachusetts Institute of Technology and, before coming to the state laboratory, was engaged in water analysis under Prof. Andrew Smith, at Beloit, Wis.

NEW YORK.

Vacation Schools. — The Federation of Churches has also opened twenty vacation schools in Manhattan, two in Brooklyn and one in Jersey City. Dr. B. R. Hoobler is the health superintendent of these schools.

Mortality among Children. — The bulletin of the State Department of Health for May shows that during that month there were 2,107 deaths of children under five years of age, of which 1,223 occurred in New York City, and 884 in the rest of the state. This is considerably below the mortality of last year and of several years past. While there was a larger number of deaths from measles and resulting bronchopneumonia in May, 1906, the mortality from these diseases was more than counterbalanced by that from other causes in the same month of last year.

Laboratory of the Vanderbilt Clinic. — Plans have been filed with the Building Department for altering and enlarging the laboratory of the Vanderbilt Clinic of the College of Physicians and Surgeons. When these improvements have been carried out the laboratory will be double its present size.

Summer Work of Board of Education. — The Board of Education began its summer work on July 9, and this includes all the boroughs of the city except Richmond (Staten Island). The same plan of study, exercise and play as heretofore will be carried out. This year there are over thirty vacation schools and about ninety-five playgrounds. The latter include a number of roof gardens on the roofs of public school buildings, where bands play in the evenings. Last year the playgrounds were enjoyed by about 3,000,000 persons.

A Centenarian. — Mrs. Mary Fay died recently in the City Hospital, Blackwell's Island, at the alleged age of 105 years. Dr. Philip O'Hanlon, the coroner's physician, who made the post-mortem in her case and who has performed some 4,500 autopsies, reports that he has never seen a woman of from forty to fifty years who seemed better preserved. The body was exceptionally well nourished, and the teeth in both upper and lower jaws were in perfect condition. An atheromatous condition of the arteries was found, however, and death was attributed to old age. Mrs. Fay was born in England, of Irish parents, and had lived in this country for forty years.

The Removal of Patients. — On July 2 the Board of Aldermen passed an ordinance, presented at the request of Coroner Harburger, to the effect that no superintendent of a hospital in the City of New York, or other person in authority, shall order or suffer the removal of any patient while in a dangerously sick or precarious condition to another hospital, unless such patient shall, after admission, have developed a contagious or infectious disease, or require care not specially within the range of treatment practised by such hospital. The penalty prescribed for a violation of the ordinance is a fine, not to exceed $100, for each and every offense. The special purpose of this measure is to prevent the alleged practice among the large private hospitals of the city of turning dying patients over to Bellevue Hospital in order to keep down their own death-rate.

Veto of Ordinance Regarding Hospital Patients. — Acting Mayor McGowan has vetoed the foregoing ordinance regarding hospital patients, recently passed by the Board of Aldermen. This, it seems, imposed a fine for a hospital superintendent to refuse to receive a patient sent to his institution, as well as a fine for transferring a patient while in a critical condition to another hospital. In his veto message, the acting mayor states that he does not believe that the aldermen had the legal authority to impose this ordinance on the hospitals of the city, many of which are organized under the state laws, and expresses the opinion that the carrying out of its provisions would lead to confusion. Another objection, he states, is the omission of any clause exempting a crowded hospital from complying with these provisions, and he regards it as manifestly unreasonable to require an institution whose every bed is occupied to receive a patient, under a penalty of $100.

Another Tuberculosis Sanatorium. — The Martin farm in the Seventh Ward of the city of Yonkers, Westchester County, consisting of 110 acres of land, has been purchased by Alexander Smith Cochran, of Yonkers, who purposes improving the property and erecting on it a complete sanatorium for the treatment of tuberculosis. The cost of land, improvements, buildings and equipment will amount to more than $500,000. When completed, the entire property will be turned over to the city, as a gift, together with an endowment fund sufficient to pay all the expenses of administration and maintenance for at least five years. The offer was made to the municipal authorities on July 2, and the Health Department and Board of Aldermen at once approved the site and gave permission for the erection of the buildings. The main building will have twenty-five beds, and accommodation for many more patients will be provided in tents. The preference will be given to incipient cases of tuberculosis, but more advanced cases will not be excluded.

Obituary.

WALTER BURLINGAME ODIORNE, M.D.

Dr. Walter B. Odiorne died suddenly at the home of his mother in Cambridge, on July 15, at the age of thirty-three years. Although some anxiety had been expressed for a number of months regarding Dr. Odiorne's health, it was not suspected that he was suffering from an illness likely to prove so quickly fatal. It is reported that his death was due to a disease of the heart; his final illness was of about two days' duration.

Dr. Odiorne was the son of the late Frederic Odiorne and a brother of the late John L. Odiorne, formerly president of the Cambridge Common Council. He was prepared for college at the Cambridge Latin School, entered Harvard College in 1891, graduating with the class of 1895. During his college course he was popular in his class and at one time was manager of his class baseball team. He was graduated from the Harvard Medical School in 1898 and thereafter served as house pupil at the Massachusetts General Hospital on the surgical side. Shortly after entering private practice in Boston he became the assistant of Dr. J. Collins Warren, with whom he was closely associated up to the time of his death. About a year ago he was appointed on the out-patient surgical staff of the Massachusetts General Hospital. He was a member of the Tennis and Racquet Club of Boston, the Loyal Legion and many medical clubs and societies. Since leaving the hospital his work had so shaped itself that his future was practically assured. He was a man of quiet manner, prepossessing personality and very marked ability. His loss will be keenly felt by a large circle of his immediate acquaintances as well as by many older in the profession with whom he had from time to time been associated.

Miscellany.

A FURTHER METHOD OF COMBATING TUBERCULOSIS.

Numerous methods of combating tuberculosis are showing themselves in unexpected quarters. An excellent suggestion is made by our contemporary, the Boston *Evening Transcript*, which we quote as follows:

"People who were born and bred in the country and who still live there are, as a rule, curiously afraid of fresh air. From their living-rooms, especially the 'parlor,' they rigidly exclude every approach of outdoor air, except at house-cleaning time, and they are more cautious still as to sleeping-rooms. The farmers, in spite of their outdoor employment, suffer not a little from consumption. It seems a pity when these country dwellers might have their lungs filled with pure, fresh air, day and night, sleeping or waking, that the poisoned air they breathe at night should be allowed to offset the good effects obtained through the day's work in the field. And if enlightened visitors, paying guests and summer boarders who have learned that one's manner of life rather than one's place of living may be depended upon to prevent consumption would but circulate their knowledge in a practical way in country places their vacations would accomplish something besides a refreshing of their own health."

RECORD OF MORTALITY

For the Week ending Saturday, July 7, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,528	608	Quincy	7	3
Chicago	471	133	Waltham	3	1
Philadelphia	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	13	1
Baltimore	278	138	Brookline	7	3
Cleveland	—	-	North Adams	2	1
Buffalo	—	—	Chicopee	9	7
Pittsburg	—	-	Northampton	7	2
Cincinnati	—	—	Medford	2	—
Milwaukee	—	—	Beverly	1	—
Washington	-	—	Hyde Park	2	1
Providence	62	25	Newburyport	5	1
Boston	168	49	Leominster	4	3
Worcester	29	12	Melrose	3	1
Fall River	56	39	Woburn	-	—
Cambridge	21	6	Marlborough	—	—
Lowell	36	17	Westfield	3	—
Lynn	22	5	Peabody	—	
New Bedford	29	16	Revere	1	1
Springfield	20	7	Clinton	2	1
Lawrence	14	4	Attleboro	2	0
Somerville	20	2	Adams	2	-
Holyoke	22	10	Gardner	—	—
Brockton	5	1	Milford	–	–
Malden	9	3	Weymouth	—	—
Salem	—	—	Framingham	—	
Chelsea	14	3	Watertown	0	—
Haverhill	13	1	Plymouth	—	—
Newton	8	2	Southbridge	1	—
Fitchburg	9	4	Wakefield	0	—
Taunton	12	5	Webster	—	—
Everett	4	-			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 4, 1906.

Oakley, J. H., passed assistant surgeon. Granted leave of absence for two days from June 29, 1906. June 28, 1906.

Lumsden, L. L., passed assistant surgeon. Relieved from duty U. S. Revenue-Cutter Service Depot, and directed to proceed to Washington, D. C., reporting to the Director, Hygienic Laboratory, for temporary duty. June 27, 1906.

Anderson, John F., passed assistant surgeon. Directed to proceed to Charlotte, N. C., for special temporary duty, upon completion of which to rejoin station in Washington, D. C. July 2, 1906.

Ramus, C., passed assistant surgeon. Granted leave of absence for fifteen days from July 1, 1906. June 30, 1906.

Stimson, A. M., assistant surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Washington, D. C., reporting to the Director, Hygienic Laboratory, for temporary duty. June 29, 1906.

Ashford, F. A., assistant surgeon. Granted leave of absence for seven days from June 27, 1906, under paragraph 191 of the regulations.

Stiles, Ch. Wardell, chief, Division of Zoölogy. Granted leave of absence for three days from June 25, 1906.

Cleaves, F. H., acting assistant surgeon. Granted leave of absence for fourteen days from July 14, 1906. June 27, 1906.

Rowles, J. A., acting assistant surgeon. Granted leave of absence for nine days from July 3, 1906. June 29, 1906.

Gibson, R. H., pharmacist. Relieved from duty at Vineyard Haven, Mass., and directed to proceed to New Orleans, La., reporting to the medical officer in command for duty and assignment to quarters. July 3, 1906.

Richardson, S. W., pharmacist. Relieved from duty in New Orleans, La., and directed to proceed to Vineyard Haven, Mass., reporting to the medical officer in command for duty and assignment to quarters. July 3, 1906.

Morris, G. A., pharmacist. Granted leave of absence for thirty days from Aug. 1, 1906. June 30, 1906.

APPOINTMENTS.

Dr. Joseph G. Wilson was appointed an Acting Assistant Surgeon for duty at Ellis Island, N. Y.

Dr. J. J. Siffer was appointed an Acting Assistant Surgeon for duty at Port Huron, Mich.

BOARDS CONVENED.

A board of officers was convened to meet at the Hygienic Laboratory, Washington, D. C., July 2, 1906, for the purpose of making an investigation of the origin and prevalence of typhoid fever in the District of Columbia. Detail for the Board: Passed Assistant Surgeon M. J. Rosenau, Director of Hygienic Laboratory, chairman; Passed Assistant Surgeon L. L. Lumsden; J. H. Kastle, Chief of Division of Chemistry, recorder.

A board of officers was convened to meet at the Bureau, Washington, D. C., Aug. 6, 1906, for the purpose of examining candidates for appointment to the position of Assistant Surgeon in the Service. Detail for the Board: Surgeon D. A. Carmichael, chairman; Surgeon L. L. Williams; Passed Assistant Surgeon Joseph Goldberger, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JULY 14, 1906.

J. H. Iden, passed assistant surgeon. Ordered to duty with Marines at Camp Elliott, Panama.

W. B. Smith, assistant surgeon. Detached from U. S. R. S. "Hancock" and ordered to examination for promotion, July 16, and then to wait orders.

T. N. Pease, assistant surgeon. Ordered to examination for promotion, July 16, 1906, and thence to U. S. R. S. "Hancock."

B. H. Dorsey, assistant surgeon. Detached from U. S. R. S. "Lancaster" and ordered to examination for promotion, July 16, 1906, then to wait orders.

A. H. Wise, acting assistant surgeon. Detached from Navy Yard, Washington, D. C., ordered home and granted leave until expiration of appointment, July 14, 1906.

M. S. Guest, surgeon. Detached from Naval Training Station, Newport, R. I., and ordered to the U. S. S. "Tennessee."

C. DeW. Brownell, surgeon. Detached from Naval Recruiting Station, Providence, R. I., and ordered to Naval Training Station, Newport, R. I., and additional duty on the "Constellation."

W. H. Bucher, surgeon. Detached from Naval Medical School and ordered to Naval Recruiting Station, Providence, R. I.

H. L. Smith, acting assistant surgeon. Appointed an acting assistant surgeon in the Navy from July 5, 1906.

J. H. Payne, Jr., passed assistant surgeon. Detached from U. S. S. "Nashville" when out of commission, and ordered home to wait orders.

Heber Butts, assistant surgeon. Ordered to the U. S. Naval Academy, Annapolis, Md.

T. W. Paison, assistant surgeon. Ordered to the U. S. Naval Hospital, Norfolk, Va.

A. A. Hoehling (retired), medical director. Detached from Naval Medical Examining Board, Washington, D. C., and ordered to his home.

RECENT DEATHS.

Walter Burlingame Odiorne, M.D., M.M.S.S., of Boston, died July 15, 1906, aged thirty-three years.

Dr. Charles A. Tinker, of New York, died suddenly from cardiac disease at West Hampton Beach, Long Island, on July 11. He was a native of Mystic Bridge, Conn., and fifty-one years of age. He was graduated from the medical department of the University of the City of New York in 1878, and practised continuously thereafter in the upper portion of New York.

Dr. Ezra D. Bemiss, for nearly twenty years a practising physician in Newark, N. J., died suddenly from cardiac disease on July 11. He was a native of Canada, and forty-three years of age.

BOOKS AND PAMPHLETS RECEIVED.

A Compend of Operative Gynecology. Based on Lectures in the Course of Operative Gynecology on Cadaver at the New York Post-Graduate Medical School and Hospital. Delivered by William Seaman Bainbridge, M.D. Compiled, with additional notes, in Collaboration with Harold D. Meeker, M.D. New York: The Grafton Press. 1906.

Eczema. A Consideration of Its Course, Diagnosis, and Treatment, Embracing Many Points of Practical Importance, and Containing 146 Prescriptions, Illustrating Dosage in Local Applications. By Samuel Horton Brown, M.D. Philadelphia: P. Blakiston's Son & Co. 1906.

Address.

THE GENERAL PRACTITIONER AND THE SPECIALIST.*

BY JOHN L. HILDRETH, M.D., OF CAMBRIDGE.

Mr. President and Fellows of the Massachusetts Medical Society, The modern tendency toward subdivision and specialization is very strong. It is manifest in education, where the elective system which permits the selection of particular studies to suit a special training or individual caprice extends far back into the preparatory schools and reaches forward through the whole period of preparation for the active work of life. It appears in industry. The watchmaker no longer makes a complete watch or the shoemaker a complete shoe. Each is engaged upon some swift and deft machine which turns out parts of the complete product to be fitted to other parts by other hands. The student of science specializes. He no longer attempts a comprehensive understanding of the whole realm of knowledge, but early picks out his small chosen bit of the field and devotes his life to an assiduous cultivation of it. The successful merchant no longer tries to direct all the details of his business. These are subdivided and intrusted, this to that confidential representative, that to this head of a department. So through all domains of activity.

This tendency is nowhere more manifest than in the medical profession. So great are the changes which it has brought about that they are imperfectly realized even by the members of the profession. In general preparation for the profession there has been a remarkable advance during the last forty years. The difference in the amount of work required to graduate from the better medical schools now and forty years ago is very great indeed; and the character of the men entering the profession seems to me much stronger and better fitted for the scientific and successful practice of medicine now than then. Then bacteriology was unknown; medical chemistry and human physiology were inadequately taught; experience counted for everything with a doctor, and scientific attainments for very little. With this change in preparation for the profession there has come a change equally marked in the practice of it. Formerly, as I have said, it was experience that counted as the prime requirement in a doctor, and that was gained in large hospitals in the medical centers of our own and other countries.

There were then no specialists except those who devoted themselves to the eye and to the ear. There was, it is true, a recognized distinction between physicians and surgeons, but the innumerable classes of specialists that exist to-day were unknown and undreamed of.

A part of the present subdivision of work has come about, doubtless, through the adoption of German methods of study and instruction in medicine. The German mind is content to expend its energies upon detailed work, to pursue a subject to the farthest possible boundary, zealous rather in the search for ultimate causes than in the practical application of knowledge. But whether from the extension of the German influence or from other causes there has come about the existing state of things, with specialists for every organ of the body. Moreover, with this extension of specialism, there has come to pass a marked change in the position and possibilities of the general practitioner. The relations of the two — the general practitioner and the specialist — to each other and to the community furnish an interesting and, I hope, not unprofitable subject of study, to a hasty and inadequate discussion of which I venture to ask your consideration.

And in the first place, let us look for a moment at the advantages which each class of practitioners enjoys, and the disadvantages under which he labors. Neither path is wholly strewn with roses. Success may be won in either, and the rewards of success are great; but they come only as the fruit of labor and sacrifice.

The work of the general practitioner is harder to-day than it was a generation ago. He is much less independent, and he has less time to himself. The multiplication of telephones makes him more subject to interruptions by his patients, who find it so easy to call him by day or by night, to ask questions — some necessary, some unnecessary — that they leave him no time which he can call his own. He is on call at all times; and it is not surprising that, while he appreciates the uses of the telephone, he sometimes regards it as a device of the Evil One. He is a slave to the peremptory call of the instrument, and must constantly be ready to answer it, as in many cases no one can answer it for him. The telephone, and that later invention, the automobile, each of which, in its way, annihilates space and time, greatly affect the general practitioner in another way. They increase competition by making available for a patient, who for any reason has become impatient, the services of a physician from a distance. These new appliances and the constantly enlarging necessities of office outfit and supplies add greatly to the expenses of the general practitioner. Altogether, it would be fair to estimate the increase in the expenses of the regular practitioner during the last thirty-five years at least 25%. If he is to be, as his patients say, "up to date," he must attend medical meetings, read the medical journals and treatises, visit the hospitals or have a hospital service of his own, and from time to time must see what is being done in his profession in other countries.

All these things make the general practitioner's life much more laborious than it was a generation ago. The simple life of the community has also disappeared, and a very strenuous and complex life has taken its place. The practitioner has to adapt himself to these conditions. He must be alert and constantly on the watch to see that no one does better work than he, and whilst he does not advertise or solicit patients, he must make himself desirable enough to insure his being sought for. Very few general practitioners who have been away from schools and hospitals for fifteen years and are thoroughly established have a moment's time to themselves, from the time that their vacation ends in the summer or fall until it begins the next summer. From early morning to late at night they are in the harness; some one wants them, wants them in a hurry. If they want a half day off for leisure, some very sick patient prevents. If they plan for a day's recreation in the country, it is more than likely that some patient or expected patient will detain them. All these conditions are much changed from those of thirty or forty years ago.

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* Delivered before The Massachusetts Medical Society, June 13, 1906.

Another important change affects the lot of the general practitioner. The medical profession has come to feel that everything that is brilliant, everything that makes an impression upon the laity, must be something that can be seen or that can be touched with the hands; in other words, must be something of a surgical nature. The man who gives advice concerning a difficult problem in medicine, who helps to complete a diagnosis when the symptoms are complicated and an accurate diagnosis extremely difficult, does very little to impress the laity by comparison with the man who performs a surgical operation. The conditions are wholly reversed from those of the time of the "barber surgeons" when the surgeon sat at the feet of the family physician. Now the surgeon is to be pacified only by the homage and admiration of the general practitioner.

The advantages and disadvantages of the specialist are obvious. He has regular hours for his office and regular hours for the hospital, and his day's work is done with the day. He can study to the farthest bounds of knowledge the causes and treatment of the diseases to which he has devoted himself. The field is not too large and the problems, although often intricate and sometimes unsolvable, are not too many. But he has to give more years to get a profitable following and he is less sure of success in the end. His time of life work is shorter. He becomes old-fashioned and some young man fresh from the large hospital fields of Europe becomes the public favorite in his stead. The field for the successful specialist is restricted to the large centers of population. A few are found in cities of from 50,000 to 100,000 inhabitants, but their opportunities for a large practice and remunerative fees are small. One thing which the specialist misses cannot be estimated by any pecuniary standard. He gains warm friends and admirers among his patients, but he does not know them as the family physician knows them; he is not their godfather, nor their elder counsellor and trusted friend as the family physician is. There is no experience in life which is quite like the peculiar and satisfying relationship which exists between the family physician and the family patients. The weary doctor derives a pleasure and comfort from this which no fee or words of praise can approach, in value.

Under existing conditions, the general practitioner cannot be expected to do original work. Everything of that nature, everything that promotes the progress of medicine in a scientific way, must be done by the specialist. But the general practitioner must be alert to follow all new discoveries and processes and to avail himself of them. It is a natural consequence of the changed conditions that young men entering the profession are drawn towards specialism rather than the general practice of medicine. My observation is that general practitioners who have sons in the profession encourage them, not to follow in their own footsteps, but to become specialists. I do not recall a single instance where the reverse is true, and where a father who is a specialist has a son who is a general practitioner. One of the older physicians of my accquaintance once said to me that it took a man of iron constitution to follow general practice, and he had on that account led his son to adopt a special form of surgery.

One strong reason which impels men to become specialists is not avoidance of night work and the other hardships of the general practitioner, but the increasing demand of the people for specialists. More and more it is coming to pass that any one who has or fears that he has some organic trouble asks his family physician, "Who is the best specialist in this or that?" or goes to a specialist without asking. It is in response to this tendency that we find that those doctors who advertise extensively, and who, while they may legally be practitioners, are not recognized by the profession, invariably advertise as specialists, with infallible cures for some particular malady. The story is told of a young lady who was asked to do something, and who, taking out her engagement book, said plaintively that she would have to be excused for that week, as on Monday she was to visit her oculist, on Tuesday her aurist, on Wednesday the orthopedic specialist regarding the arch of her foot; on Thursday she must go to a specialist in pelvic disorders, on Friday to a specialist in nervous disorders, and on Saturday to a specialist on the spleen.

It has always seemed to me that, when a general practitioner thinks that a patient should have the advice of a specialist, he should again, as he no doubt has done before, give his patient as thorough an examination as if he had never seen him, so that nothing may be overlooked and he may have as complete a knowledge of the case as possible, and be sure that his decision is correct. In this way some new light may be let in upon the diagnosis, and some help secured for the treatment before the decisive step is taken of recommending the patient to go to a specialist.

It has not often fallen to my lot to be present when a specialist first saw his patient. It has not been my invariable custom, I regret to say, to send a detailed statement of the history of a case and its treatment to the specialist, so that he might have the advantage of all my knowledge of the case at the time that the patient reaches him. I suppose that it does not matter what the case is, — whether of the eye, or ear, or brain, or abdomen, or skin, or whatever else, — it must be that all thorough specialists make all inquiries for themselves at the first visit, just as though the patient had not been seen by any other person and just as though they had no information regarding the case from the practitioner sending the case to them.

But I am quite sure that some of the specialists are not thorough in their examination of cases, but simply accept the patient's statements, and examine him for the trouble for which he has been sent to them. I have seen some very sorrowful mistakes made in this way by specialists. On the other hand, I have seen some remarkably good work done by specialists who have given the patient a thorough looking-over, have gotten a complete history of the sickness, and have taken sufficient time to master all the details of the case up to the time when it presented itself for their treatment.

Some specialists have the excellent custom of writing out their opinion of what the diagnosis is, and what they believe to be the proper method of treatment, and of sending this statement, very soon after they have seen the patient, to the practitioner who sent him to them. This is helpful to the general practitioner; it brings the specialist nearer to him; it makes the treatment of the case more satisfactory if the work of the specialist seems to go along as a continuation of that of the general practitioner. I have been greatly helped by such letters, and I believe that if this were a more general practice it would be of advantage to patient, general practitioner and specialist alike.

And I believe also that it would be helpful if the specialist, when he is through with a patient, should send him back with a note to the general practitioner, so that he might see what the result of the treatment was, the specialist practically turning the patient back to the general practitioner, so that conditions should be restored which existed before the family physician sent the patient to the specialist. Perhaps this is done oftener than I suspect, but I am sure that a general observance of this custom would break down the barrier which now often exists between the general practitioner and the specialist. The general practitioner would not be afraid of losing his patient for good if this practice were followed, and he would be the gainer by knowledge which might be of help to him if a similar case should present itself. These may seem trivial points of etiquette and of very little consequence to a busy man; but if the work of the profession is to be thoroughly and carefully done, such co-operation between the general practitioner and the specialist is very desirable, especially in difficult and baffling cases.

There has come, I am sure sometimes, to be some sense of rivalry between the general practitioner and the specialist. The general practitioner is sometimes inclined to feel that, if he sends his patient to a specialist, the latter will treat lightly what he has done for the patient, and will alienate his regard. Also, he may feel that the specialist is prompted by pecuniary considerations and thinks chiefly of his fee. Some general practitioners, for these and similar reasons, hesitate to send patients to specialists, perhaps delaying to the detriment of the patient. This is all wrong. For professional, humanitarian and scientific reasons, there should be accord between the two. Each should recognize and respect the other as doing good work in his line and should co-operate with him in every way possible. These rivalries and misunderstandings are more likely to develop in the smaller cities and towns than in larger medical centers; but wherever they exist, and to whatever causes they may be due, all who have the highest interests of the profession at heart should allay and relieve them. If the general practitioner is annoyed by the greater prosperity of a specialist, he should recollect that the increasing demand for specialists is in line with the tendency toward specialization in the other professions and in business; and also that in a considerable number of cases, the people who seek specialists do not have family physicians, but are led by what they hear about a specialist or read about him in the newspapers, to seek him when they have or think they have an ailment which comes within his special field. The specialist nowadays does not receive his patients from the family physician in anything like the proportion in which he formerly did.

The general practitioner, who spends all his time in looking after $3.00 dollar ailments, thinks of the specialist as sitting in his office gathering in $5.00 or $10.00 fees; or as engaged in surgical operations for which he receives large compensation. But he forgets that, while the specialist may spend his afternoon hours in this profitable and pleasant fashion, he has devoted his morning to hospital work without remuneration. Though, to be sure, his afternoon may bring him larger returns than the entire day of the general practitioner brings to him. From this view point of the general practitioner, the work of the specialist may well seem to be more on a commercial basis than his own, not only because of his larger fees, but because often he sees his patient but once, and there is an entire absence of the personal tie which is so strong between the family physician and his patients.

As commercialism has taken so strong a hold upon other callings and is sometimes not altogether absent from the movements of the clergy, it would not be strange if its influence were felt among specialists. They are in a way of knowing as much as any one of the rapid accumulation of large fortunes in other vocations. The papers are full of facts regarding these fortunes and the processes by which they are heaped up. Doctors are quite pardonable if they are not exempt from some aspirations in this direction. The change in habits and expense of living which has taken place among the people with whom the doctor associates makes it extremely difficult for him to maintain his proper social level. The cost of educating his children and establishing them in life has increased greatly; and, both by reason of these heavier burdens and of the lower rates of interest on investments, the money which it is necessary for him to lay by to provide for them and for his own old age is much larger than was required a generation ago.

There is, I am sure, a feeling among some of the older men in the profession that the spirit of commercialism is taking a very strong hold of the whole profession; and that, even in conservative Boston, where the highest professional standards have been maintained, there is danger that the central idea of relieving human suffering and making the lives of our fellow beings more pleasurable and more peaceful may give place, to some extent, to consideration of the size of the fee which the doctor may exact from his patient. In too many instances this fee seems to be based, as the railway magnate said of the freight charges, upon " what the traffic will bear."

When the Prince of Battenberg visited this country some months ago in command of a British squadron, and as the guest of our government, he carried away, as a souvenir of his visit, the receipted bill of a New York dentist for $1,000 as the price of filling four teeth. The distinguished guest was not in a position to remonstrate; he paid the bill like a gentleman, and it was only by an accident that its extortionate character was made public. But when the facts were made known, they aroused just indignation in the public mind, and more than one rich and patriotic American would rather have paid the bill from his own pocket, had that been possible, than to have had the distinguished guest carry away such a reminder of American rapacity.

But the charge of this New York dentist is paralleled by many charges for surgical work. Recent correspondence in one of our medical journals contains an instance of this sort.

A New York surgeon asked $1,000 for an operation for removing an appendix. The mother of the patient offered $600, but the surgeon protested, cited testimony of brother physicians to prove that the fee was not excessive, and finally received the balance. The letter which enclosed the last check was as follows:

" My discussion with you has been a friendly one, and so you will not, I feel sure, suspect me of any acrimony, when I say that my feeling about the present excessive charge of surgeons is a very general one, and the reflection of a sentiment that is everywhere one of surprise and dissatisfaction. We do not question your ability, but we feel you make us pay too dear for it."

This fee was not exceptional. Higher fees have been charged for similar services; and one case is on record where a surgeon charged his patient, — a very rich man, — $15,000 for an appendix operation, the case being one of no special difficulty, and the charge, evidently, being assessed with reference to the patient's wealth rather than the service rendered him. Possibly the surgeon may have been a bit of a Socialist in his way, and may have taken this method to assist in the redistribution of wealth. I am quite sure from considerable personal observation in the Mississippi Valley and in the far West, and on the other side of the Rocky Mountains, that this spirit of commercialism has gotten a pretty strong hold upon the profession. Medical and surgical service is considered and estimated according to its money value to the giver of the service. So far has this gone in some of the western cities that the fee tablet has in some instances of which I have a personal knowledge contained nearly two hundred items where the price was fixed for certain services, and where the whole method in which the price was varied and fixed to the service rendered seemed to be based on the principle of exacting from the patient as much as he could possibly pay.

There are considerations on the other side of this question of fees to which it is too much to expect the laity to give much heed. As has been truly remarked in the discussion of this question, all eminent surgeons have undergone a rigid and severe technical training after their graduation, and it is this training which makes their hand sure while operating. The patient pays them, not for the brief time spent in an operation, but for the skill and training which have been acquired by years of strenuous effort, and upon which he bases the assurance with which he gives himself to the surgeon's knife, certain that everything which science can do to relieve his suffering and save his life will be done. That sense of assurance is worth so much to the patient that he should not begrudge paying for it, provided the fee of the operating surgeon is not beyond reason. There is another consideration also which the laity overlook. Every surgeon and every physician devotes much time to hospital cases or to cases among the poor, where only nominal fees can be asked at the most, and where often it is impossible that even these should be paid. In no other profession is a man expected cheerfully to take such risks and undergo such hardships at the dictates of humanity, without expectation of reward. If a physician or surgeon charges a wealthy patient a large fee, it may be in order that he may thereby be the better able to render gratuitous service in the name of humanity.

No one will deny that the doctor who gives many years to study, who deprives himself of many of the pleasures of life that he may minister to suffering humanity, should be properly remunerated so that he may have the ordinary comforts of life. He should be able to make all the usual provisions against sickness and distress, whether to himself or his family, to educate his children and to enjoy an old age free from worry and care. But he is not like the man engaged in business who studies every transaction to know just how much profit it is to yield him financially. He should study every case, not from the standpoint of dollars and cents, with a veiw to making the utmost possible by multiplying his visits or playing upon the fears of his patient, but with a view to doing everything in his power to relieve and save his patient without the slightest regard for the compensation he may receive.

Before dismissing this subject of commercialism in medicine, I want to add a word concerning a certain class of practitioners, constituting a considerable percentage of the brotherhood, who are at the farthest possible remove from any reproach on this score.

Most of those whom I have in mind live in the country towns, where business methods do not prevail as in the larger centers of population. In these communities, long credits are almost invariably given, accounts between neighbors and friends sometimes run indefinitely without being brought to a settlement, and bills for groceries, provisions, dry goods and other articles for family use are not paid every month, or every three months, and sometimes not every year. Naturally enough, the doctors fall sometimes into the same habits that the farmers and mechanics and laboring men among whom they live have acquired. Assuredly these men do not need a warning against carrying on the practice of medicine for the purpose of accumulating a fortune. Their life is hard, their hours of labor long. The ready money in their communities is limited, and they have to adapt themselves to the conditions around them. They suffer more than any other class from these conditions, because in these rural communities the doctor's bill often is the last to be paid. If they have children growing up and to be educated, they find it extremely hard to do for them what they would like to do.

I believe that, as a class, these men are the most self-sacrificing, honest, conscientious workers for the relief of human suffering in the whole range of the medical profession. But I wish that they might adopt new methods, especially in the management of financial matters. It would be better for them, and better for the profession, and better for their patients, if they were to send their bills promptly once a month or once in three months. Their fault is a fault which leans to virtue's side, and it is a great deal more lovable than the fault of commercialism, which lies at the opposite extreme. But I wish that these faithful servants of the public might do better for themselves. If they would do even half as well for themselves and their families as they do for those to whom they minister, their outlook would be much brighter than it now sometimes is when some accident or sudden sickness curtails their activities. And, although they do not realize it, a change in their methods would be of advantage to the profession by dignifying its proper compensations and preventing the spread of the destructive notion that a doctor's bill is something that can be attended to at any time, — or not at all, if it is not convenient

"*Noblesse oblige*" is a familiar French phrase. When the French say this, they mean that nobility of birth imposes a special obligation upon whoever boasts of it. The man nobly born cannot be, or at least ought not to be, like common men. The very circumstance which increases his privilege increases in the same ratio his responsibilities. But, if this is true of noble birth, how much more is it true of a noble profession.

It is the work of the physician to relieve suffering; to calm apprehension; to make easy and secure the entrance into life; and to attend humanity every step of the way from the cradle to the grave. His it is to study and aid the processes of nature in restoring health; to provide a just ground of confidence in time of accident or sudden fear; to be a friend, counsellor and helper in every physical emergency of life for which human skill is of any avail; to do all this gladly, enthusiastically, unselfishly. The annals of the profession are full of the records of men who have faced every contagion and every form of peril without a thought for their own personal safety. In every great epidemic many doctors have given up their lives who might have saved themselves by flight, but who would not leave those who needed them. On every battlefield, in the track of advancing armies surgeons have cared for the wounded while bullets were still flying. This very year, doctors have been murdered by the side of their patients in Russia, because they would not forego their work of mercy at the demand either of Cossacks or of the mob.

This is a noble profession to which we belong. Richer than any heritage of birth is that which falls to us as successors of the courageous and self-forgetful practitioners of the past. The nobility of this heritage imposes upon us a corresponding obligation. We cannot be, we ought not to be, like men without such a heritage. If the mercenary were to be substituted for the humane motive in the practice of medicine, the most ennobling and beautiful qualities of the profession would be lost.

It is a serious misfortune that such a profession as ours should even become subject to the suspicion of commercialism. But, if it should yield to that influence, if it should be overwhelmed by it, — that would be a calamity indeed.

Original Articles.

THE TREATMENT OF TUBERCULOSIS OF THE BONES AND JOINTS.*

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

IN presenting a subject of such magnitude as the title of my paper implies it is impossible, in the time allotted, to do more than to mention the essential features which are the basis of all treatment, giving due emphasis to the prevention of the disease, that which represents the special work of this association.

It should be remembered, in the first place, that the disease under consideration is tuberculosis, and that while the structures involved may differ histologically from those in which the condition is more frequently seen, the essential characteristics, nevertheless, are the same.

Bone is naturally of greater density than the soft tissues, and, consequently, the time required for the development of the disease in such a tissue must be greater, this being also true in regard to the disintegration of the necrosed tissue and the final cicatrization. Except, however, for this fact, the disease is the same, having the same general pathology, the same variations as to types, the same prognosis, and requiring the same principles of treatment, as apply to tuberculosis in any other portion of the body.

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* Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, held at Washington, May 17 and 18, 1906.

The disease is, of course, due to the presence of the tubercle bacillus acting locally in the part affected, and it is usually possible to demonstrate the presence of the organism if the tissues can be subjected to examination, or if the tissues themselves cannot be examined, it may be found in the pus or detritus resulting from the disease. The mode of introduction of the bacillus to the body and its transmission to the seat of the lesion is frequently a matter of conjecture, but whether it came through the respiratory tract, or the intestinal tract, from some external wound, or in some other way, is a matter of little importance in planning treatment for the local lesion, unless this local lesion represents an extension of the disease from some other organ.

Pathology. — A thorough knowledge of the pathology, and especially the gross pathology, of bone and joint tuberculosis is of the utmost importance in considering the problems of the treatment, as it is only by being familiar with the many gross appearances that the conditions for which treatment is sought can be properly interpreted.

The tubercular lesion in the bones or joints differs from the disease in the soft parts only as one would expect from the different density of the structure in which it develops. The bacillus produces an individual tubercle, which in its development causes the destruction of the tissue immediately surrounding it. The tubercle develops by extension from the periphery with the softening or caseation at the center, and by the fusion of many of these tubercles a cavity or abscess results. In bone, after the process has continued for some time, the bony tuberculæ included in the caseous area soften and become detached, either as small particles, or if the area involved is greater, as a mass of separated necrosed bone, a sequestrum. With this and as a part of the disintegration which goes on in such a disease, the bone abscess is formed. In such an abscess, whether in the bone or elsewhere, it is to be remembered that the disease is constantly developing at the periphery, and that the abscess is only the softened center of the diseased area, so that the periphery, or wall of the abscess, is made up of individual tubercles fused together, suggesting, in appearance, a membrane, the so-called pyogenic membrane.

The process in bone is almost invariably seen in either the small bones or in the cancellous ends of the long bones, and very rarely in the dense cortical bone affected. The process starting thus in bone, extends in all directions and may, in this way, involve the joint or the soft structures surrounding the bone. In the knee the favorite seat of the disease is in the epiphyses of the femoral condyles or in the head of the tibia. From the femoral epiphyses the bacilli find their way to the joint surface through the intercondylar notch, or more peripherally along the edge of the trochlear surface, external or internal. If the extension is directly from the bone the cartilage is involved first where it joins the bone, leading to its becoming detached, so that, at times, one sees the entire cartilage covering a condyle lifted off, the separated surface being studded with miliary tubercles. At other times, if the extension to the joint is different, a reddish, vascular, granulating pannus may grow in over the margin of the cartilage, with the resulting destruction of the portion beneath. The entire synovial membrane may be infected, and then one detects a purplish, infiltrated, but only mildly villous thickening of the entire parietal synovial membrane. Under such conditions there is commonly some excess of fluid in the joint, and this contains, in greater or less amounts, caseous material and general detritus which results from the development of the disease. The entire cartilage at times looks bluish, with red streaks in various places where erosion is imminent, either from above or below.

Joint tuberculosis does not always start in the bone, but it may be, primarily, a synovial process, the bone being involved secondarily. This can be proven pathologically, and there is also abundant clinical evidence in support of such a statement, beside the fact that tubercular lesions are found in every other serous cavity of the body, and there would seem no reason to exempt the synovial structures.

In bone and joint tuberculosis one of the great difficulties lies in determining the limits of the process, and also what represents repair, both in the bone and in the soft parts. On opening the large joints, *e. g.*, the knee, the cartilage may seem intact, but will be found to cover, as with a lid, a cavity in the bone beneath. This cavity will contain active but possibly slumbering disease. Repeatedly have I seen such cavities in an active eruptive stage with granulation tissue growing up out of the cavity, and infecting the synovia in the immediate neighborhood. On opening such a joint the general cavity of the articulation may look very normal, except that the synovial membrane may be slightly thicker than usual but without villous change. A reduplication of the joint membrane will be found folding itself over the cavity above described, and when this is incised it will be possible to demonstrate active disease within. There may be very little restriction of motion in such a joint, and it is in this kind of an articulation that conservative surgery finds its most favorable opportunity. In it there is a considerable portion of the articular surface which is intact, and there is a protective cordon of fibrous tissue shutting off the slumbering focus from the healthy tissue of the joint, so that extirpation of this area, if thoroughly done, should eradicate the disease and preserve whatever motion was already present.

The pathologically hopeless joint in the adult is the one in which there is a considerable amount of flocculent exudate with thickened, vascular, synovial membrane, eroded cartilage, and an eroding pannus creeping up over the borders of the trochlear surfaces. In such a joint the control of the disease is not only difficult, but oftentimes impossible. If the process is arrested in such a joint, as it may be even after extensive destruction has occurred, the eroded bone is never replaced by new-formed bone, but the necrotic area is filled in by a firm fibrous tissue alone, or by a combination of the calcified detritus from a cold abscess and fibrous tissue. The repair of damage done by tuberculous disease which has stability to it is dependent upon the completeness of the fibrous infiltration of the focus, and the obliteration of the cavities produced by the disease. It is in these cavities, if not closed, that tuberculosis lurks and has the potential of recrudescence. It is for this reason that central lesions, that is, those which are situated in the body of the epiphyses, and which do not open widely into the articulation, are more dangerous than the erosions which extend into the epiphysis from the joint side and thus have, as a rule, a wider portal of entrance and exit.

The practical bearing of the knowledge of the method of repair is of great value from the view point of surgical pathology. It affords a probable explanation of the capacity of childhood and youth to combat tuberculous lesions so successfully, inasmuch as the rapidly growing tissues of early life have greater propensities for the manufacture of fibrous tissue, and in the second place, in the adult where radical measures in the treatment of surgical tuberculosis have so much wider application, it enables us to decide upon the proper time to interfere in cases suitable for erasion. The chance of dissemination of tuberculous disease by such procedures must be reckoned with, but such risk will be most certainly greatly diminished if we allow enough time for fibrosis to become established about a tuberculous focus. Where this has not taken place, and surgery is undertaken, raw bone surfaces are laid bare and infective material may be thrown directly into the local circulation, and from thence a general miliary process may be imposed upon the individual.

Joint and bone tuberculosis occurs most frequently in childhood, as is true of most of the so-called nonmalignant forms of bone disease, at the period when the bones are soft before complete ossification has taken place, but it is also to be borne in mind that there is no age in which there is exemption from the disease.

In planning the treatment of such a process it is to be remembered that the course of the disease is the same, and that there are the same variations in type as is true in tuberculosis of the other organs. In the lung it is not infrequently the case that the course of the disease is rapid, so that a fatal termination is the result in a few months, while, on the other hand, it is also true that not infrequently the disease, which is equally definite in its nature, may exist in the lung, producing comparatively few symptoms for many years with ultimate recovery. Just what determines the wide difference between these two types, whether the individual susceptibility of the patient, or the virulence of the organism, is a matter of question. One or the other, probably both, of these factors must be of importance, as certainly the wide difference cannot be explained by treatment or lack of treatment, for many times those who can have the most ideal treatment succumb most easily, while at other times the reverse is equally true.

With the disease in the bones and joints, the same variation occurs, and in one instance a very acute and destructive type exists, causing great impairment of function of the part, while at the other extreme is seen a mild course with little suffering, and with little disturbance of function, and between these two extremes there are all possible modifications. All of this must be borne in mind in planning treatment, as well as in making prognoses, never forgetting that the process is tuberculosis, possessing all the peculiarities of that disease, and that while mechanical measures form a large and essential part of the treatment, nevertheless these cannot change the type of the disease, and all that can reasonably be expected is that the severity may be modified, and the inevitable development of deformities may be prevented. In the mild form of the disease the symptoms may subside in a few months, and the treatment be safely discontinued in a comparatively short time, while in the severe type, many years may be necessary before the process is healed, and a considerable portion of that time may represent suffering to the patient in spite of our best efforts to relieve.

Treatment. — In considering the treatment it should be clearly borne in mind that because the patient has tuberculosis, it does not necessarily mean that he is doomed or that there is reason for the panic so often seen with both the profession and the patient. The disease is undesirable, naturally, as is true of many other diseases, but because a bone or joint, or an organ of any kind, is affected with this disease it does not necessarily mean that that part of the body must be removed. We are dealing with an infectious process, which, in many instances, may produce destructive changes with much resulting mutilation and with frequent extension of the disease to other organs, but which in other instances, even under unfavorable conditions, and still more often under favorable conditions, gets well with little resulting impairment of function of the part which had been affected.

It is our duty as physicians and surgeons to recognize these two extremes, and to decide in each case just what policy is to be followed and why that policy is used. If the patient is in good general health, with no loss of weight, no elevation of temperature, or other symptoms to show that the tubercular organisms have not been kept under control by the natural elements of resistance in the given individual, there certainly is no reason to feel that the area of disease must be at once removed, any more than it is considered necessary to excise every pimple or pustule which may contain the streptococci. Naturally, these organisms are not desired by any of us, and we avoid, so far as possible, their introduction into our bodies, but while we know that under certain conditions they cause great disaster, we realize that under ordinary conditions, nature, if she have a fair chance, is amply able to protect herself against such elements. The same thing is true of tuberculosis, and if nature is given a fair chance the disease is controlled by those elements of resistance with which we are all endowed, but regarding which we are extremely ignorant.

In facing the treatment of tuberculosis the first motive should be to preserve the life of the individual, and to do it with as little mutilation as is possible. If to save life it is necessary to sacrifice a leg or an arm, a kidney or any other organ, by all means sacrifice that part, but let us be sure first, that the part must be sacrificed, remembering that in a large number of cases such radical measures are not required, and that an organ which may lack even a part of its function is better than no organ at all, or that a member which may lack much in the normal amount of function is usually far better than artificial contrivances, however perfect may be their construction.

In such treatment the consideration of the general health is of the utmost importance, and should not be overshadowed by the surgical or mechanical treatment, even though the immediate results of such measures are much more apparent. Life in the open air, with an abundance of sunlight, together with proper bathing and good food, is important, and, in general, every detail of hygiene should be supervised with the same care as is considered desirable in the treatment of tubercular disease in the lungs. It is by such measures that the vitality of the individual cell is increased, and the resistance to the extension of the disease is made possible, and it should be remembered that while these measures are of the utmost importance during the entire course of the disease, they are of importance also throughout the entire life of the individual, and if adhered to undoubtedly represent the greatest possible factor in the prevention of the disease. Life absolutely in the open air, the living in tents or shacks, such as is desirable during the active stage of the severe types of the disease, is not, of course, necessary for a permanent mode of living, but the proper ventilation of the rooms, with plenty of sunlight, with proper bathing facilities, and with a reasonable amount of good food, should be possible, and is always desirable, not only for those already affected, but also as the best preventive measure for those not yet diseased.

For internal treatment, aside from an abundance of good food, there is little required, other than such things as would relieve special symptoms, or would improve or aid in the nutritive processes.

For local treatment the general principle consists in the preservation of the function of the part, so far as is possible, without increasing the irritation at the seat of disease. In pulmonary disease it is not the custom to bind up the chest, or in any way to restrict the respiratory function, but, on the contrary, life in the open air, with considerable exercise and in high altitudes where the respiratory effort must be greater, with special exercises to still further use and develop these organs, are all considered important, and are advocated up to the point of toleration in the given individual.

With the disease in the bones or joints the same principles hold, and instead of confining the part absolutely, function should be allowed as in the lung up to the point of toleration. The degree of limitation must vary with the individual case, owing to the fact that there are different types of such disease, or different degrees of virulence, and also because of the different stages, whether late or early, whether with or without deformity, of the given type. The confinement of not only the affected joint but also the joints adjacent, as is so very common, notably in hip disease, should be avoided as a routine measure, because of the necessary effect which this has upon the nutrition and the consequent resistance of the part. Only such limitation of function should be allowed as is necessary to control the symptoms in the given case, and aside from this use should be allowed in order that the circulation and the nutrition may be interfered with as little as possible. By so doing not only is the local resistance increased, but the healing, even in the severe cases, takes place much more rapidly than can be expected where the extent of the limitation of the function has made all of the processes sluggish.

In limiting the motion, the position of the part should carefully be borne in mind with reference to the balancing of the various groups of muscles, recognizing this as nature's protection against deformity, and that if this can be established the muscle spasm, which results from over stimulation of the muscle without the normal antagonizing power, will disappear. At the same time the position with reference to the ultimate function, in case anchylosis takes place, should be considered.

In the knee the most favorable position to accomplish both of these is with the leg flexed about five degrees. In this position the flexor and extensor muscles properly antagonize or balance each other, so that the muscle spasm, which is so noticeable a feature during the active stage of the disease if the joint is flexed, ceases entirely. This position in case anchylosis takes place is also the most favorable for practical use.

In the hip the best position is with the thigh flexed about 20°, abducted 15° or 20°, and outwardly rotated about 10°. In this position the head of the femur rests most easily in the acetabulum and the various muscle groups are balanced so that the element of spasm is largely eliminated. This position is not only the most favorable during the acute stage of the disease, but it is also the most favorable in case the disease is so extensive that anchylosis is the final result. In this position the flexion and abduction act as flexion in sitting, while in walking the abduction with the outward rotation make it possible to preserve the upright position and obviate the rolling gait seen wherever the leg is the least adducted. In standing the flexion is overcome by the increased flexibility of the lumbar spine, while the abduction corrects, in part, at least, any shortening which may have taken place.

In the spine the most favorable position is that of considerable hyperextension. This overcomes the great disadvantage in which the posterior muscles act when the body is flexed (the usual deformity), at the same time lessening the presure at the seat of the disease, with the consequent benefit to the general health, which must come from the fact that in hyperextension the thorax is expanded, giving greater respiratory movement.

In the ankle the best position is with the foot at right angles with the leg, in which position the spasm of the gastrocnemius, which is so marked when the foot is dorsally extended, is entirely overcome, and in case of anchylosis this position is also the most favorable for function.

In the other joints the same principles apply, but as these joints are less frequently affected than those already mentioned, it does not seem essential that they should be specially considered. The joint should be protected during the active stage of the disease, and the position during protection chosen with reference to overcoming the muscle spasm by balancing the antagonizing muscle groups; this, at the same time, being the best position for anchylosis in case the disease should be so marked as to make this result necessary.

At times, even under the most favorable conditions, the joint lesion does not improve under conservative measures which should always be thoroughly tried first, and something more radical becomes necessary. This may also be considered advisable, at times, when in some exposed part the lesion is shown so clearly to be localized and easy to reach that even though the process might heal under conservative means, it is, nevertheless, frequently wiser to extirpate the area of disease.

The special operation which is to be performed in the given case must necessarily depend upon the part affected and the severity of the disease. If it be located in the joints of the extremities, and there is not only great bone destruction, but extensive involvement of the soft parts, with the general condition such that it is evident the resistance to the extension of the disease to other parts is nearly reached, amputation or entire removal of the affected part may be demanded. In any such case, however, if the environment previous to this consideration of treatment has not been of the best, at least a short period of trial under the most favorable general and local conditions should be urged, as under such conditions even seemingly hopeless cases at times improve very markedly. If this be the case, while operation may still be needed, a less mutilating operation than amputation may be sufficient to accomplish the desired result.

Excision of a localized area of disease is occasionally possible, but usually, because the involvement is more general, more extensive operations, such as excision of the joints, are demanded. In the knee this is most satisfactorily carried out, while in the hip it is less so because it is not often possible to remove all of the diseased bone. In the ankle the complexity of the joint, with the frequent extension of the disease to many of the tarsal joints, makes extirpation of the disease difficult if not impossible. It is to be borne in mind, however, even in such a case, that although all of the disease cannot be removed the condition is not necessarily hopeless, as not infrequently, if a large part of the disease is removed, nature is able to take care of the rest, and healing promptly takes place.

In any case, however, whether the disease be located in the knee, hip, or any other joint, before an operation is performed the part should be put at rest for sufficient time for the process to quiet down, realizing that by so doing the dangers of absorption with extension of the disease to other parts are very much lessened. To still further lessen this danger, before the wound is closed the entire operating field, both bone and soft parts, should be generously wiped out with the tincture of iodine or pure carbolic acid. If the latter is used alcohol should be used immediately after the application of the acid. Personally, the iodine is my preference, and after its use the wound should be loosely closed, not attempting to establish drainage other than to allow the escape of the excess of the exudate which would follow the operation. It is always well to try for a rapid closure of the wounds, as by so doing the danger of secondary infections, other than tubercular, is very much lessened.

Another point which is of importance in the treatment of such conditions, and this chiefly as a preventive measure, is the correction of deformities which may have resulted before our responsibility in the treatment of the case began.

A flexed or adducted hip, a flexed knee, an extended foot, all are deformities which result in strain to the part during use, which in the majority of cases, if continued, will result in the lighting up of the original disease. This being the case, even though there may be no evidence of active disease at the time of the examination, if deformity be present so that the joint is strained in use, operation for the correction of this should be advised. If the active disease is still present, conservative measures, such as traction, or protection, should be advised, but if the deformity is seen in the healed process operations such as the sub-trochanteric or transtrochanteric osteotomy for the hip deformities, the supracondyloid osteotomy, or wedge-shaped resection, for the knee deformities, and the removal of the astragalus or osteotomies for the ankle deformities. All of these are of importance, and should be advised under such conditions for the purpose of prevention of the recurrence of the original disease.

Of the special features more or less common to all forms of bone and joint tuberculosis, the abscess is probably the most common. In dealing with this it is to be remembered that such an abscess is formed by the softening down of the center of the tubercular mass; that the wall, or periphery, of the mass is composed largely of tubercles, and that the increase in the size of the abscess is due to the extension of the disease at this periphery. Such an abscess, if uncontaminated, contains no other organism than the tubercle bacillus, and is not associated with rise of temperature or other symptoms indicative of general systematic disorder. Its presence is usually made known, unless it comes to the surface where it is readily seen, not by any special general symptoms, but by interfering mechanically with the function of the part. The joint capsule may be made more tense, a muscle (such as the psoas) may be irritated or pressed upon with resulting contraction; a nerve, such as the vagus, in the posterior mediastinal abscess, may be irritated and cause serious cardiac symptoms; or an organ, the trachea or bronchi, from a retro-pharyngeal or mediastinal abscess, or the abdominal viscera from the large abdominal abscesses, may be pressed upon and its function interfered with. All these, and many others of similar nature, are conditions often seen, and from the point of view of treatment such considerations assume importance. The mere presence of an abscess, provided it is not interfering with the function of some special part, and provided that it is not part of a general infection, as would be shown by the elevation of the temperature and the general condition, is of very little importance as long as it is closed. If the abscess could be entirely removed, and the primary focus removed at the same time, some procedure which had for its purpose this end would strongly be desired; but when it is remembered that in many cases, in fact in most of the cases, the entire removal of the primary focus is not possible, free drainage of the abscess is not to be desired, since it opens a mode of fresh tubercular infection along the wound, and furnishes a mode of entrance for other organisms which are as much to be feared as the primary disease. Many of the deaths which occur in cases of this sort are due to a general septicemia resulting from this secondary infection, and are only indirectly due to the tuberculosis. For this reason unless there is hope of the entire removal of the disease the abscess should be ignored, until it has come well to the surface or is causing some of the undesirable symptoms mentioned above. In any case, the danger of the secondary infections and the practical impossibility of keeping a discharging sinus clean should always be borne in mind. In children the resistance to the mixed infections is undoubtedly greater than with adults, but even with them the utmost care should be taken, both at the time of the operation and later to keep the process purely a tubercular one.

If, for the reasons given above, drainage of the abscess is desired, it is wiser, wherever possible to aspirate for the purpose of removing the excess of the fluid, not expecting to remove all of the disease, which is impossible except in rare instances. This aspiration will probably have to be repeated several times, the intervals depending upon the rapidity of the refilling of the cavity. If, for any reason, the aspiration is not successful, small punctured incisions, one or more, would be the most desirable procedure. In any case, if the abscess is generally infected, free incision should be made, the pus evacuated, and the cavity wiped out. The tissue should not be torn or mutilated more than is necessary, and the curet should not be used, since all such procedures open fresh points for absorption. In order to lessen the danger of this, as well as to destroy any free tubercular material after the pus has been evacuated, the entire cavity as well as the fresh edges of the wound, should be thoroughly wiped with the tincture of iodine or with pure carbolic acid.

Following this the wound should be loosely closed, leaving a small wick extending into the abscess cavity, which should be removed in from three to four days. After this the wound should be encouraged to heal, knowing that the abscess will undoubtedly refill, and at some time later require further attention. Even should this be repeated several times it is better than if a long-continued discharging sinus is allowed, because of the lessened danger of secondary infection.

Such, gentlemen, are the essential features which should be the basis of all treatment for patients afflicted with bone or joint tuberculosis. No one feature is alone of value, but in connection with the others which have been enumerated it assumes its proper proportion, and if the treatment be consistently carried out along such lines, not only will the results be better, but the great dread which this disease inspires, both in the minds of the profession as well as the laity, will give way to the more reasonable consideration such as is accorded to other controllable diseases.

THE DIAGNOSTIC SIGNIFICANCE OF DECIDUAL TISSUE.

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From the Laboratory of the Free Hospital for Women.

The object of this paper is to cite several cases in which the microscopical examination of decidual tissue has been of importance or interest from a diagnostic standpoint.

Before giving a description of the cases which I have collected, it may be well briefly to review the most modern views concerning the etiology and histology of decidual tissue. This curious tissue formation has always been and still is a fertile field for discussion, but the recent work of investigators has done much to clear up the mystery of decidua, and its true nature is now considered definitely proved.

The study of decidua dates back to the work of William and John Hunter and Mathew Baillie, who considered it a fibrinous exudate from the lining membrane of the uterus. They considered that this fibrinous membrane was formed before the arrival of the ovum in the cavity of the uterus, and that when the ovum reached the uterine end of the tube, it was obliged to push the membrane before it, this portion of the decidua being therefore termed the "reflexa." It was supposed that then a new exudate was formed beneath the ovum, which was called the "serotina," a Latin term which means "coming later." This idea of the decidua was universally accepted until the year 1846, when Weber and Sharkey showed that it could not be an exudate on account of the presence of uterine gland structures. They explained therefore that the decidua vera was an actual development of the endometrium, and that the ovum, on its arrival in the cavity of the uterus, became implanted on this decidua vera, which began to proliferate and to grow up around the sides of the ovum, until the ovum was completely covered. This view has been held ever since and is very generally taught at the present time. The terms "reflexa" and "serotina" have been retained under this conception although they are no longer applicable. The scientific terms now used are decidua capsularis and decidua basalis in the place of reflexa and serotina.[1]

The latest studies of the uterine decidua have somewhat modified the theoretical views which I have just stated. It has been shown that the decidual tissue is essentially not a newly formed tissue, but that it represents a reaction of the maternal stroma cells of the endometrium, that these stroma cells become enormously enlarged and more succulent and probably do not proliferate at all, the greater thickness of the endometrium being due almost entirely to the increased size of the stroma cells lying in the superficial half of the mucous membrane of the uterus and to a glandular hypertrophy which takes place in the deeper half of the endometrium. It should be remembered, also, that decidual tissue is essentially and always a maternal tissue, and though there may lie in it many large and giant cells which have a fetal origin, yet these cells are not true decidua, but are simply broken off accidentally from the fetal ectoderm or syncytial layer of the chorionic villi. It was this accidental presence of syncytial cells which caused a long debate among authorities as to the maternal or fetal origin of decidua. This problem has been solved by the somewhat recent studies in so-called deciduoma malignum which has been proved to have its origin in the syncytial cells and is, therefore, more correctly termed syncytioma or chorio-epithelioma.

The theory of Weber and Sharkey concerning the formation of the decidual reflexa, namely, the growing up and about the ovum of the vera, would seem to refute the statement that the decidua is a cell reaction and not a proliferation. Recent investigations by Selenka, in the tissues of impregnated monkeys and by Peters in a three-days human pregnancy, go to show that the ovum is not primarily implanted on the surface of the decidua, but that it buries itself in the decidua itself immediately on entrance into the uterine cavity, and grows then from the center of the decidua. The reflexa would, therefore, be simply the decidua vera, which covers the ovum, and the serotina would be the vera whch lies beneath it.

Considering then decidual tissue as a re-action of maternal tissue and not as a new formed tissue either from the mother or from the fetus, it is easier to understand the presence of decidua in the tubes and other tissues in extra-uterine pregnancy. Good authorities have observed decidual tissue in the tubes of an ordinary uterine pregnancy. They have also observed patches of decidual tissue in the pelvic peritoneum of uterine pregnancies, while the existence of decidua in the tubes in extra-uterine pregnancy is a well established and frequently observed fact. In cases of extra-uterine pregnancy good observers have discovered decidual tissue in the opposite tube from which the extra-uterine pregnancy takes place. They have found it in the periphery of both ovaries, in the peritoneum of the pelvic viscera, and even in the appendix and omentum.

The etiology of the decidual reaction of connective tissue cells has never been satisfactorily explained. Neither the theory that decidua is a peculiarity of stroma cells of the Muellerian duct, nor the theory that the decidual reaction is due to the increased blood supply in pregnancy, are convincing. In a recent article by Taussig, attention is called to the fact that in all instances the decidual reaction takes place near the surface of tissues involved, and that, therefore, the process may be due to the contact of these surfaces with some material poured out as an end product of a placental metabolism.

It does not seem to me that the explanation of decidual tissue advanced by Taussig is really more satisfactory than other theories that have been propounded. His statement, that decidual reaction occurs only in the connective tissue lying near the surface of the organs involved, is not supported by observations which I have recently made in a case of a uterus which I extirpated for the cure of extreme sepsis, following a miscarriage at three and one-half months, with a retention of a large portion of the placenta. In this case, which afforded an excellent opportunity for the search for decidual cells, I found a very marked decidual reaction throughout the connective tissue between the muscle fibres, deep in the myometrium. The appearance of decidua in the myometrium is recognized by so good an authority as Gebhard. It may be interesting also to note that no decidual reaction was found in either of the tubes or ovaries, and I therefore agree with Taussig, that its occurrence in these locations is by no means constant in cases of uterine pregnancy.

As far as I have been able with the material at my command, I have endeavored to substantiate the observations made of decidual cells in tissues other than the endometrium. In all but one case, I have found them in the tubes of extra-uterine pregnancies on the affected side. I have also found them in the ovary of the affected side. With regard to the appearance of decidual cells in the periphery of the appendix, I am somewhat skeptical. In none of the appendices removed at the time of operation for extra-uterine pregnancy, have I been able to discover the slightest suggestion of decidual reaction in the subserosa.

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[1] From Williams's Obstetrics.

The first case which I shall report represents an unusual appearance of decidua in a case of extra-uterine pregnancy. The clinical aspects of this case were of considerable interest, and for that reason I shall report the case somewhat fully, both as regards its clinical history and the pathological findings.

Mrs. H. came to the out-patient clinic of the Free Hospital on Feb. 6, 1906. She was a large, robust woman of twenty-six. She stated that she had been occupied as a cook in a lumber camp in Maine. She had had a child nine years before, and had had two miscarriages. Her last regular catamenia had been on Nov. 7, two months previous to my seeing her. On Dec. 23 and on Jan. 1 she had had severe attacks of pain in the abdomen, and slight flowing. She was taken to a hospital in a neighboring town, and while there passed a large clot, which the doctors told her was a miscarriage. She continued to have some pain and flowing, and in a few days was curetted. She left the hospital on Jan. 29 against advice, as she had been told that she had a large pus tube. I examined her and found a large mass on her left side, rather soft and not very tender, extending from deep in the left pelvis and posterior cul-de-sac up to a level of about an inch above the umbilicus. In the right side was a similar mass of about half the size of that on the left. She had a temperature of 101°, but did not seem very sick. She was admitted at once to the Free Hospital for Women. A blood count was made which showed a leucocytosis of 23,800. Considering her history of a miscarriage, which seemed fairly authentic, and considering the blood count and the size of the tumors, a diagnosis was made of bilateral pus tubes and it was decided to keep her in bed and watch developments. On Feb. 15, nine days after I first saw her, there was no subsidence whatever of either of the two masses, although the patient's temperature had come down to normal, and the blood count was also normal. There was no pain and no discomfort, and only very slight pain on pressure over the tumor on her left side. The non-subsidence of the tumor in connection with the disappearance of symptoms did not act like pus tubes, and it was decided that it would be perfectly safe to operate. On opening the abdomen I found a large, dark irregular mass, extremely adherent to everything, and occupying nearly the whole of the lower half of the abdomen. This was proved to be an enormous hematocele consisting of blood in a well advanced stage of organization. It was extremely friable, and was removed in great handfuls without causing any serious trouble. It was surrounded by a friable capsule as smooth as the peritoneum on the outside, and about ½ cm. in thickness. The tube could be made out for most of its length, although extremely adherent and indefinite. The ovary was found in the midst of the blood clot, and perfectly healthy in appearance, and with no evidence externally of a corpus luteum. The tube was tied off and removed with all of the blood clot on the left side. On turning to the right side a thin-walled cyst was seen, about the size of an orange, and surmounting a large indefinite adherent friable mass, similar to that seen on the left. The cyst was ruptured in removing the mass. The entire mass was freed from its adhesions, tied off near the uterus and removed. The appendix was amputated, as it was adherent, and the uterus which had been displaced by the pelvic mass was suspended. The patient made an excellent recovery. The interesting points which appeared at this operation were the two independent pelvic hematoceles, the presence of an absolutely normal ovary on the left side, with no appearance of a corpus luteum, the entire absence of any vestige of a fetal tissue.

On observing the nature of the mass consisting of an organizing blood clot, it was of course at once apparent that I was dealing with an extra-uterine pregnancy. Inasmuch as it is safe to say that all pelvic hematoceles from the tubes are the result of extra-uterine pregnancies, the presence of a hematocele on both sides suggested strongly the probability of a bilateral extra-uterine pregnancy. The absence of a corpus luteum in the ovary on the left side, where the hematocele was found, suggested strongly the likelihood of the so-called condition of the transmigration of the ovum, which has been described by Williams. Having then good proof of an extra-uterine pregnancy, it became of interest to find out the nature of the so-called miscarriage which the patient had described. On writing for particulars of her case from the hospital where she had been treated, I was told that she was supposed to have had a miscarriage, and the specimen was forwarded to me for examination. The specimen proved to be not an ovum, but a complete decidual cast of the uterus. Microscopical and macroscopical examination showed it to be made up entirely of maternal decidual tissue. The specimen was well preserved, and there could be no doubt whatever of the diagnosis.

Histologically, the interesting points in this case were that the exfoliation of a complete uterine membrane in connection with the symptoms of pregnancy, and the presence of a pelvic mass, if properly interpreted in this case, would have given absolute and unquestionable evidence that the woman was suffering from an extra-uterine pregnancy. In this case no harm was done by the mistaken diagnosis, because the fetus had aborted and had been dead for some time, and completely absorbed. The blood clot was organized on both sides, and although it had doubtless been formed by a continuous trickle from the tubes, the bleeding had probably ceased for some time. This woman, if left alone, would probably have entirely recovered, the blood clot being absorbed, although the chances of an infection or of a recurrence of the bleeding would have been possible.

In making the microscopical examination of the specimen, it was impossible to find anywhere the slightest evidence of fetal tissue, it having been completely absorbed, as is usual in these cases. There was, however, in the specimen, a curious tissue, the nature of which at first I was unable to interpret. It consisted of broad bands of connective tissue surrounded by a single layer of cuboidal epithelium, many of these bands coalescing and forming apparently gland inclusions. The bands tapered off in places to small finger-like processes, which resembled slightly chorionic villi, because of the nature of the stroma cells which were like great fibroblasts, many times larger than ordinary connective tissue cells, and with pale indefinite nuclei. The protoplasm of the cells was very extensive and varied in contour. This tissue was especially evident at the fimbriated extremity of the left tube, and on further study proved to be actually the fimbriæ themselves with a very marked decidual reaction. Section of the tubes nearer the uterine end showed perfectly normal tubal tissue.

An examination of the mass on the right side showed no evidence of ovarian tissue, the mass being made up of blood clot and an extremely convoluted tube. The normal fringes of the tube could be found in a few places, the fringes for the most part being thickened and with large undoubted decidua cells in their stroma. A part of the mass consisted of the same broad coalescing bands of tissue covered with a single layer of epithelium, such as could be seen on the left side. There were present the same large pale stroma cells which had every evidence of a marked and unusual decidual reaction, and, in general, it could be made out that there also existed a decidua of the fimbriæ of the right tube.

The following conclusions were drawn from the study of this case:

First: The exfoliation of a complete uterine decidua and the presence of pelvic hematoceles are proof conclusive that an extra-uterine pregnancy had existed.

Second: The presence of a large hematocele on the left side continuous with the extremity of the tube, but not involving the ovary, signifies a pregnancy starting from the fimbriated extremity of the tube.

Third: The presence of normal tubal tissue throughout the greater part of the left tube, with decidual reaction at the end, leads me to believe that the broad bands of tissue above described represent a marked decidua of the tubal fimbriæ.

Fourth: The decidual reaction of the tubal tissue of the right side in almost its entire length, the presence of bands of tissue exactly similar to those seen on the left side, together with the presence of an independent hematocele, lead me also to believe that there had existed an extra-uterine pregnancy on the right side. The existence of a bilateral extra-uterine pregnancy, though rare, has been authoritatively observed in cases where the fetal tissue has been preserved, and though in this case there is the lack of evidence of fetal remains, I have no doubt whatever that a bilateral tubal gestation occurred.

The second part of this paper deals with the difficulty attending the diagnosis of exfoliated uterine membranes. It may well be seen that there are few instances in the practice of surgery, where a rapid and accurate microscopical diagnosis may be more important. There are few conditions where an incorrect diagnosis is more often made than in extra-uterine pregnancy, and the following cases are cited to show that the microscope may not only be of great aid in the diagnosis of this dangerous condition, but that also it may be very misleading.

In general it may be formulated that the uterine decidual tissue, as its name implies, is normally exfoliated after parturition, either at full term, or when it is premature. After full term it is probably dissolved in the lochial discharge. After premature delivery it may come away in the lochial discharge, or it may appear in shreds. It may also be formulated that it is common in cases of extra-uterine pregnancy to have the decidua exfoliated in shreds or in large pieces, or even in a complete triangular cast of the uterine cavity. If, therefore, a woman with the symptoms of pregnancy begins to flow and discharge a membrane which, under the microscope, is seen to contain decidual cells, it would seem to be presumptive evidence that she was suffering from an extra-uterine pregnancy, and that her life was in danger, and that a surgical operation was imperative. I have a number of cases which could be cited in which this process of reasoning with certain precautions, which I will mention later, has been carried out where the diagnosis has been verified by later operation, and where the microscopical findings could be stated to have been of inestimable value in the surgical treatment of the patient. These cases I will not describe in detail, but will confine myself to four cases which illustrate with what reserve a final diagnosis should be made in the study of exfoliated membranes.

Case I. A specimen was brought to the laboratory of the Free Hospital for Women for diagnosis, consisting of a membranous tissue about 5 cm. square. It had the characteristic appearance of an exfoliated uterine membrane, namely, one surface being wrinkled and containing minute openings apparent to the naked eye, the other surface being ragged and irregular, about one quarter of a cm. in thickness. Microscopical examination showed it to contain well marked decidual cells. The only history which I was able to get in this case, was that the patient had been bleeding for about one month, with the final passing of the above named membrane, and that there was present a unilateral mass in the pelvis. The diagnosis of a decidua from an extra-uterine pregnancy was made, a diagnosis which was confirmed by Dr. W. F. Whitney. Two days later the patient gave birth to a three months' fetus.

Case II. A piece of organized tissue 2 cm. long was brought to the laboratory from a private case for diagnosis. Seven days before the patient had started to flow a thin bloody material. Four days before she had had an extremely sharp attack of pain, temperature going to 104, pulse 116, since which time she had improved, and the physician had made out a mass on one side. Microscopical examination showed typical decidual tissue, and the diagnosis of pregnancy, probably extra-uterine, was made by me. The next morning the patient delivered a macerated three months' fetus. These cases, similar in their clinical and histological aspects, and occurring as they did within a few days of each other, were an instructive lesson. The diagnosis in both these cases seemed clear enough. The decidual tissue was undoubted, and in both cases the physicians, both competent diagnosticians, felt unilateral pelvic masses, and suspected the presence of extra-uterine pregnancy, even before the passage of the membrane. If the physicians' clinical findings were accurate, these two cases represented probably the rare conditions of interstitial pregnancy, where an abortion from the uterine end of the tube has taken place into the uterine cavity.

Case III. A specimen was brought from the private practice of a physician to the laboratory for diagnosis. The specimen consisted of a triangular piece of uterine decidual tissue, and represented a complete cast of the uterine cavity. In this case I was unable to get any history whatever. Microscopical examination showed the specimen to be entirely typical of the decidua of pregnancy. In this case, considering the fact that the entire endometrium of the uterus was present, and that it was perfectly typical of the decidua of pregnancy, it seemed safe enough to make a diagnosis of extra-uterine pregnancy. This I did, however, with numerous reservations. The physician who brought the specimen later admitted that the patient who had passed this membrane had a history of membranous dysmenorrhea, and that she for several years had passed a membrane similar to this one, at nearly every period, and that she had not had any symptoms whatever of extra-uterine pregnancy before or after the passage of the membrane which I had examined. This specimen illustrates the extreme difficulty of making an absolutely differential diagnosis between the decidua of pregnancy and the exfoliated membrane of a membranous dysmenorrhea. I have in my collection numerous specimens of membranous dysmenorrhea which are quite distinct in their histological aspects from the ordinary case of decidua, chiefly in the matter of the size of the stroma cells. This case bears out the statement made by several good authorities, that it is impossible sometimes to distinguish between the two conditions.

Case IV. On April 12, 1906, I was called to see a case who had been flowing excessively for several hours, and suffering sharp abdominal pain. On examination I found a large soft uterus with an indefinite mass on the right. She gave a history of having been pregnant for about three months. During the morning she had passed a membrane which had been saved for my inspection. It represented a decidual uterine membrane constituting at least two thirds of the uterine cavity. The presence of the mass on the side induced me to admit the patient at once into the hospital, on the possibility of an extra-uterine pregnancy. In about twenty-four hours she passed a complete unruptured ovum about the size of a pullet's egg, attached to the remaining portion of the uterine decidua. In this case the size of the uterus made me doubt an extra-uterine pregnancy, the mass on the right side probably representing adhesions from a catarrhal salpingitis from which she had suffered two years before.

The conclusions which I have drawn from these four cases and from the cases in which I have made successful diagnoses are as follows:

First: The passage of a decidual membrane in a patient with symptoms of pregnancy and with a mass on one side, together with a history of flowing, is extremely significant of an extra-uterine pregnancy, but cases do occur where this seemingly conclusive chain of evidence is not proof of an extra-uterine gestation.

Second: An ordinary miscarriage may be preceded by the exfoliation of a part or the whole of the decidua vera.

Third: The pathologist who receives a specimen of decidual tissue should make his report with extreme reservation, to avoid the commission of a serious surgical blunder.

Fourth: It may be impossible to differentiate, even with the greatest microscopical care, between an exfoliated dysmenorrhoic membrane and the decidua of an extra-uterine pregnancy, and the pathologist before committing himself to a diagnosis should insist on knowing accurately the history of the patient.

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MEDICAL DEPARTMENT OF THE JAPANESE ARMY.

BY MAJOR CHARLES LYNCH, M.D.,
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(Continued from No. 3, p. 57.)

In any army, no matter how efficient its medical department may be in securing needed supplies, their distribution must depend largely on the department in charge of transporting them. The Japanese were extremely fortunate in having an excellent department of transportation and communications, and not only were ample supplies purchased, but there was never any shortage at the front or elsewhere. The Japanese have a fine plan for promptly furnishing adequate hospital accommodation for their sick and wounded when war comes. In order that no delay may occur in providing enough structures for hospitals on the outbreak of war, the hospital director of each division hospital makes a yearly estimate, with plans and specifications, for the buildings which he will need in the event of war. Contracts are then let, with the proviso that the contractor will only be called upon to execute his contract when notified by the government. Wonders have been accomplished in quick construction of some of the hospital wards, only two or three days, in a number of instances, being required to have them ready for the reception of patients. In the field, on the lines of communication, boards of officers are appointed at various points to determine what buildings will be required for the army. The hospital directors are members of such boards, and their opinions are almost final for their department. At Tehling, at the end of the war, as the Japanese anticipated a big battle on their front, in the fall of 1905, hundreds of men were employed in adapting buildings for hospitals and in constructing new ones, and thousands of dollars were being spent for these purposes.

The practice of sanitation in the Japanese army, during the recent war, has probably attracted as much attention from the world generally as has any other subject in connection with that organization. There is no doubt but that the Japanese fully appreciated the importance of good hygiene as primarily necessary to render their army effective. Moreover, they realized that good faith required that the government protect the health of its soldiers. Public sentiment, which is as powerful in Japan as elsewhere, also demanded this. Apparently, there was no necessity to create a sentiment among higher commanders in regard to the importance of good sanitation for the army, and such commanders conscientiously supported all practicable measures which would lead to the betterment of the health of troops.

The medical department pronounces upon the physical fitness of officers and soldiers entering the army, educates them in sanitary matters, supervises their hygiene during the course of their service under the colors and determines when they are no longer fit for active duty.

All officers and soldiers are carefully examined before they are accepted for the service. The physical standard maintained is a high one. Perhaps in no army are so few weaklings seen as in the Japanese. As soon as officers and men are taken into the army, their physical training commences. With officers, this is given through their entire school course, as well as while they serve in the ranks. At the schools, about half the time is devoted to mental work and the other half to physical exercises. Soldiers, on entering the service as conscripts, have a special course of physical exercise for about six months, then a test before their officers. Those who pass this successfully go out of the recruit class. Special attention is devoted to those failing to pass until they can do so. During the whole course of each man's active service, he is kept in good physical condition by hard exercise. For this the Japanese rely to some extent on setting-up exercises, not differing much from those of the Germans. In addition, each soldier is given constant drill, carrying his full equipment, with a great deal of running. Physical contests are also encouraged among soldiers by their officers, who arrange for them, putting up small prizes for the winners. Bayonet and sword fencing, and wrestling, the national sport of Japan, are the forms which such contests take. The results attained by the Japanese in the physical training of the officers and men of their army, expended as it is on good material, are excellent.

Thorough instruction in sanitation is given to the army personnel, generally. All line officers receive this from their medical officers at the schools, as well as during the time that they serve in the ranks. Soldiers are taught sanitation by the medical officers of their units. For them the basis of instruction is a small pamphlet prepared by the medical department. This is entitled, "Health Memoranda for the Use of Soldiers in Time of War," and is distributed to the army in the proportion of three or four copies to an infantry company. While these memoranda are thus made available for men who care to read them, the lessons taught by them are frequently impressed on all soldiers by their medical officers. The pamphlet inculcates no new sanitary principles, but its teachings are of a thoroughly practical character.

Special interest always pertains to what the rôle of the medical department should be in reference to the sanitation of an army in field and garrison. In almost all modern armies, it is customary to make the medical department responsible for the sanitation of the army, and leave the methods by which it shall supervise sanitary conditions and enforce its recommendations in regard to the correction of sanitary abuses somewhat in doubt. The regulations of the Japanese are not much clearer in this respect than are those of other nations, but the practise is in many ways far better. As has been stated, Japan is a country of specialists, nor do her people believe themselves qualified to practise specialties not their own; so commanding officers are willing to credit medical officers with special knowledge on those subjects in which they have received technical training, and to receive their advice and recommendations as those of competent men, and not to oppose their own inferior knowledge on these special subjects. To do otherwise they would consider unpatriotic. The functions of medical officers with troops are purely advisory, except with their own organizations, where they are executive as well. Regimental medical officers report sanitary defects to their commanders and state how, in their opinion, they should be corrected. The presence of epidemic disease is reported to the division surgeon, as well as to the commander. Sometimes sanitary committees, with a medical officer — the commander of a field hospital or a regimental surgeon — as the senior member, are detailed. These have to do both with the sanitation of troops and the inhabitants of the country occupied. The Japanese realized that no system of sanitation for an army in the field could be effective if account were not taken of the hygienic condition of the people, generally, at the seat of war, and of epidemic diseases occurring among them. The Chinese, therefore, were always encouraged to seek treatment from army medical officers, which was free, as were also medicines, which were supplied them by the army. In the Manchurian cities, more elaborate arrangements were made for board of health work, but these need not be entered into here. Division chief surgeons are the real sanitary inspectors of the army, such inspections being regarded as one of their most important duties, to which they devote a considerable part of their time. If a division surgeon finds sanitary defects in an organization, he cannot order the commander to correct them, but he can, and invariably does, call the attention of the commander to them and suggests measures for their remedy. Then, if they are not corrected, the proper order is obtained from the division commander, though this is rarely necessary in practice. Army chief surgeons also make sanitary inspections, when necessary, and during the recent war, the Chief of the Medical Bureau of the War Department made at least two visits to Manchuria, during which he investigated sanitary as well as other matters of interest to his department. A number of sanitary inspections were also made, during the course of the war, by civilians of high attainments in their particular specialties. They were all under the orders and direction of the Medical Bureau of the War Department.

The last duty of the medical department, in reference to sanitation, to be mentioned here, is that of ridding the active army of physically unfit material. The opinion of the examining medical officer is final in regard to physical fitness on discharge from active service, of officers and men, just as it is for their entry into the service. In this connection, the statement should be made that a monthly physical examination is made of all troops in the Japanese army by their medical officers. This is valuable, not only for the discovery of men who are no longer physically fitted for service, but also as a means to detect diseases, which might otherwise spread to well men.

The army in the field was well provided with microscopes and apparatus for bacteriological work, and these were all intelligently and frequently used. The regimental medical officers were not so equipped, but field hospitals were furnished with a good amount of such apparatus for carefully differentiating disease, examining water, etc., and, in the second army, at least, a fine laboratory, in which work of too difficult a nature for the field hospitals could be carried out, was located near the front in the lines of communication.

The quarters for troops in Japan are not good. They are on a poor model, one adopted from the French, long ago, of two-story buildings around a barrack square, and are not well ventilated nor lighted, nor have they sufficient cubic capacity. In Manchuria, troops were universally quartered in Chinese houses, except on the line. These structures were faulty in much the same respects as the barracks in Japan.

The clothing of the men was good and well adapted to their needs, except the shoes, which were probably the worst foot-gear that any army has attempted to wear in a great many years. That the infantry was not disabled in great measure by such shoes speaks well for the cast iron character of the Japanese foot.

The Japanese were well fed, according to their own standards. The proportion of meat was very much smaller than ours, and rice, of course, constituted the bulk of the food. Both cigarettes and *sake* were furnished as a part of the ration. The former were issued habitually and the latter only at times of specially hard service, though it was generally procurable at canteens and sutlers' stores, with which the army was well supplied. In order that the amount of food should be sufficient, four analyses monthly were made of the ration issued. This was done by the medical department, which weighed the different constituents of several rations and found the number of calories from a table. If the food value of a day's ration fell below 2,580 calories, the fact was reported to the intendance department, which then increased certain articles of the ration, so that it would have the requisite food value. On account of the great prevalence of beriberi among the Japanese, as this disease has been so commonly ascribed to dietetic causes, it is necessary to consider the food, which the army ate, very carefully. It is certain that, as a whole, soldiers were much better fed than they are at their homes. Their rice was exactly the same as that to which they are accustomed in civil life. In fact, practically all rice was bought in Japan. On account of the prevalence of beriberi, barley was mixed with rice. The proportion of barley differed considerably; at times, as much as two "go" of the latter grain were furnished to four "go" of rice.

The previous experience of the Japanese had convinced them that, if they were to have a healthy army, provision must be made for furnishing troops with a safe water supply under all circumstances. The necessity for confining themselves to sterilized water was impressed on soldiers, both in their health memoranda and by the continual injunctions of all their officers. The more intelligent and better disciplined the man, the more careful was he to obey the prohibition against the use of untreated water, and this class of men was freest from water-borne diseases. Still, while there were individual instances of the men, as a whole, drinking from streams and other unauthorized sources, even the train soldiers, who were most careless, did wonderfully well in this respect. The medical department made four routine chemical analyses of water monthly, with analyses, also, when new villages were occupied by troops. These analyses, however, were simply intended to show the best water supply available and whatever results were reached in them, sterilization of the water selected was always effected. In villages, wells chosen were guarded so that Chinese and soldiers could not cantaminate their viciniy, and troops were directed to rely on them exclusively for their water supply. In battle, no analysis could, of course, be made. Boiling was the method of sterilization on which the Japanese depended, to the exclusion of all others, when circumstances were such that it was applicable. In battle, men boiled water individually in their own canteens. At halt, the battalion kettles, which were carried immediately in the rear of troops, on pack animals, were used for this purpose. Boiling stations were also operated in towns through which troops passed, so that men en route might get water or tea from them at any time and would, in consequence, be less likely to be driven by thirst to drink water from streams or wells on their way. While the Japanese had made some plans for the chemical sterilization of water before the recent war, it is evident that none of the methods in vogue then proved valuable, as they were all abandoned during its course. In the spring of 1905, a general issue was made to the army of an apparatus, called the "Ishiji Filter," after its maker, a druggist in Tokyo. This consisted of a collapsible canvas cone, suspended on a bamboo tripod. On the sides of the cone, at the bottom, two canvas cylinders projected, which were filled with sponge and charcoal, through which the water flowed to the collectors. Two solutions were mixed with the water in the cylinder. The composition of the chemicals, from which these solutions were made, was held secret by the maker. It is supposed that one was permanganate of potassium and the other hydrochloric acid and silicate of aluminum. The rate of filtration by this apparatus was rapid, and the water which came from it did not taste badly. The Japanese claim that the organisms of typhoid fever, dysentery and cholera are promptly destroyed by it, but their experiments do not seem conclusive to me. I bought such a filter in Japan and intend to have it carefully tested at the Army Medical Museum in Washington. Of course, if this apparatus gives a safe and tasteless water, it will be of great value for armies, but it would be idle to conclude that Ishiji has succeeded in accomplishing this until a comprehensive test is made. In the summer of 1904, the need of water carts, to carry a supply for troops marching, was severely felt by the Japanese. During the winter of that year, therefore, such carts were made in the arsenal in Tokyo, ready for issue the next year. This cart consisted of the ordinary Japanese transport cart, with a closed boiler, in which water could be quickly brought to the boiling point. It therefore afforded a means for sterilizing water, as well as for carrying it.

As is well known, Japanese methods for the disposal of wastes are far different from ours. In the barracks at home, fecal material and urine are received in earthenware vessels, from which they are taken by contract for disposal on the fields. In Manchuria, during a battle, no pits were dug, in which men could defecate and urinate, nor were places designated to which men were compelled to resort for such purposes. When a village was occupied by troops, the Japanese always carefully policed it and made pits for waste water, feces and urine in the compounds of the houses in which they lived. Their closets were not dark enough to exclude flies, but fecal material in them was kept well covered with earth or ashes. As the Chinese were anxious to have fertilizers for their fields, there was no difficulty in having the pits cleaned. Though the towns occupied by Japanese soldiers were always much cleaner than they had ever been before, it was impossible to change the habits of the Chinese in respect to urination and defecation. They use the sides of the streets for these purposes, which, in consequence, are always vilely dirty.

The civil laws of Japan are strict in regard to notification of the presence of contagious diseases, their quarantine, etc., so that soldiers entering the army encountered no more rigorous rules, in respect to these matters, than those to which they were accustomed at home. All soldiers suffering from contagious diseases are promptly removed from their organizations. In the army, even at the front, each contagious disease, under which term the Japanese include typhoid fever and dysentery, is separately isolated in a special hospital or in the epidemic disease section of a hospital devoted to general purposes. Such hospitals and sections were carefully screened, and elaborate precautions were taken in them to disinfect everything which might spread infection. The quarters of troops, from which contagious disease cases were removed, and their clothing, etc., were disinfected with care. Chinese were sometimes taken from their dwellings to the contagious disease hospitals. Not infrequently, however, on account of their unwillingness to enter a hospital, they were treated at home. In the latter case, the infected house was avoided by soldiers until, on the termination of disease dangerous to them, it could be disinfected. Many cases of contagious disease were imported to Japan by soldiers returning from the Chinese-Japanese War. To prevent this, during the recent contest, large quarantine stations were established at Ujina and Moji, where ships could be inspected, disinfected, etc., and persons arriving could be examined, treated, quarantined or segregated, as required by circumstances.

The suggestion has been made that the Japanese army possessed some racial characteristics, which conferred comparative immunity on it from some diseases. Personally, this is not believed to have been the case. Typhoid fever is not such a common disease in Japan as it is with us, but dysentery is more common there relatively. These two diseases are conveyed from man to man in practically the same manner, and while typhoid fever was rare, in the Japanese troops in Manchuria, dysentery was equally so. No more can be said of the Japanese soldier than that they were a sturdy body of men, inured to a good deal of hardship by the conditions under which they lived normally, and that their high order of discipline and their education on sanitary subjects helped them from becoming infected with prevalent diseases.

Manchuria has been described both as an ideal health resort and also as a most dangerous place for troops to occupy. It was, in fact, neither the one nor the other. There were many diseases encountered among the Chinese there, which were liable to infect troops and to spread widely among them. On the other hand, cholera did not appear, and malarial fevers, so prolific a cause of sickness in troops operating in certain places, were also absent.

The Japanese, as already stated, directed particular attention to the prevention of the so-called water-borne diseases, and they undoubtedly met with great success in this respect. Their practice in regard to this class of diseases is, therefore, deserving of close study. While, in civil life, such affections are commonly spread by water, in an army, contact infection plays a most important rôle. The Japanese appreciated this fact and isolated these diseases just as carefully as they did smallpox. The Japanese also attempted to prevent the occurrence of this class of diseases in their army by the general and constant use of an intestinal antiseptic. The drug which they adopted for this purpose was creosote. Creosote pills were issued to each officer and soldier in small tin boxes, and their patriotism was invoked in order that they might take them. This was done by the following inscription on the box: "To defeat the Russians, take one pill, three times a day." It is believed that the Japanese surgeons made a bad mistake in this use of creosote. They made some experiments, which, to them, proved its value, but were not conclusive to any one else, and the prolonged use of creosote must certainly have been harmful in disordering the digestion. Though some of the Japanese surgeons did not believe in the efficacy of creosote for the purpose for which it was issued, they were very loyal in insisting on its use, and it was undoubtedly taken by the great majority of the men. It will be some time before the Japanese compile their statistics on the occurrence and mortality of typhoid fever and dysentery, but, from personal observation, it is known that they escaped these diseases in great measure. It is believed that the Japanese had about one sixth as many cases of typhoid fever and dysentery as did the Russians. No one cause can be ascribed as wholly responsible for this difference. The Russians were not particularly careful in regard to their water supply. They did not protect their cooking utensils from flies, their medical department did not promptly discover and isolate cases of these diseases, and their methods for the disposal of wastes were not so good. Infected urine was probably not an important factor in the spread of typhoid fever in the Japanese army; at least, no great precautions were taken in the disposal of urine, and it is not believed that many cases of typhoid fever resulted from this. Of course, in an army like the Japanese, where typhoid cases are promptly isolated, there is much less danger that infected urine will pollute the ground than if opposite conditions prevail.

Typhus fever is not an uncommon disease among the Chinese in Manchuria, though it is rarely encountered in Japan. Cases of typhus were much fewer in the army than those of typhoid. That this most contagious of diseases did not spread is the best evidence of the efficiency of the sanitary service.

Beriberi proved a terrible scourge to the Japanese army during the war, though it had been pretty well eradicated from both army and navy in peace. The experience of the navy, which by increasing its ration is said to have immediately checked beriberi, has always been cited as one of the strongest proofs that this disease is of dietetic origin. The experience of the army in the Japanese-Russian War is certainly opposed to this. As has been stated, the soldiers were well fed and ate the rice to which they were accustomed. Ideal conditions existed, in the crowded barracks at home and in the equally crowded quarters in China, for direct infection from man to man, and it is believed that beriberi was conveyed from person to person in this manner rather than that the food was at fault. Methods to prevent extension of beriberi during the war were wholly based on belief in the dietetic nature of the disease and were wholly unsuccessful. The substitution of a part of the rice in the ration by barley has already been spoken of, as has also the means taken to insure a sufficient ration. Probably not less than from 40% to 50% of all disease in the Japanese army, during the entire war, was due to beriberi.

Smallpox is endemic among the Chinese in Manchuria, but notwithstanding this fact, the Japanese did not have many cases of this disease. This may be ascribed to the careful vaccination of both the civil and soldier population of Japan. While contact with Chinese suffering with smallpox was avoided by soldiery as far as possible, living, as they did, in Chinese houses, many chances for infection were, of course, given.

(To be continued.)

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Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

PROCEEDINGS OF THE ANNUAL MEETING, HELD AT CLEVELAND, OHIO, MAY 30, 31 AND JUNE 1, 1906.

(Continued from No. 3, p. 72.)

A YEAR'S EXPERIENCE IN INTESTINAL SURGERY.

Dr. John B. Deaver, of Philadelphia, Pa., said the 40 patients whose cases formed the text of his remarks were operated on at the German Hospital and the Children's Hospital of the Mary J. Drexel Home since Jan. 1, 1905. These cases comprised 12 simple entero-enterostomies; 11 intestinal resections, with entero-enterostomy; 1 enterotomy; 2 colostomies; 7 enterorrhaphies for various forms of fecal fistula; 1 suture of a typhoid perforation; 1 reduction by manipulation of an intussusception; and 8 instances in which strangulating bands or adhesions were divided, besides 3 other (atypical) operations — a total of 46 operations on 40 patients.

There were 13 cases of intestinal carcinoma, all in the large bowel. The cecum was dissected in 4 cases, the hepatic flexure of the colon in 2, and there was 1 case each in which the part affected was the transverse colon, the splenic flexure of the colon and the rectum; while there were 4 patients in whom the sigmoid was the seat of malignant disease. Five of these 13 patients died — those patients in whom the splenic flexure and the rectum were involved; 1 of those with the cecum affected, and 2 of those in whom the sigmoid flexure was diseased. The remaining 8 patients recovered from the primary operation, and were relieved temporarily, but of the 4 successful cases in which the patients were seen sufficiently early for a radical operation to be done, two developed symptoms of recurrence about eight months later, and were agian temporarily relieved by further operation, and in the case of two others, on whom a radical operation was done, sufficient time had not elapsed since the operation to permit of their being considered in this connection.

TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.

Dr. E. H. Bradford, of Boston, said that in a large number of cases of congenital dislocation of the hip complete cure could be accomplished by manipulative reduction. In difficult cases efficient mechanical reduction was of assistance. In certain cases, owing to a distorted capsule, the femoral head was not placed deep in the acetabulum or was kept from the bottom of the acetabulum by a capsular fold and relapse took place. Under these circumstances the surgeon could by incision of the capsule widen the capsular constriction, place the capsular flaps around the head and neck, secure the head of the femur until cicatrization had formed a retaining capsule about the reduced head.

The operation was a somewhat difficult one and was easily imperfectly done. It was a serious one, but was capable of giving most satisfactory results in cases where failure or imperfect result was otherwise inevitable.

It was manifest that in a relaxed capsule much depended on the after treatment. If the capsule was loose, the head would drop out if not held in place until the tissues had become reformed so that they held the head firmly. A certain number of relapses were due to this. From the experience at the Boston Children's Hospital it appeared that the position of the limb after reduction and the after treatment depended largely upon the anatomical condition of the joint and whether there was a strong projecting acetabular lip. Within this was a zona orbicularis, and precise rules could not be laid down further than that the head should be placed well in the socket and kept there until it was firm in its improved position and not kept long enough in a distorted position for the tissues to become too stiff or nonelastic. If the head was not properly reduced, it was inadvisable in the hope of benefit from delay to postpone attempts at other measures of relief, *i. e.*, incision or a repeated manipulation.

THE OPEN TREATMENT OF FRACTURES.

Dr. **Edward Martin**, of Philadelphia, said that the wounds necessitated by the open treatment of fracture were more prone to suppurate than were those made in the performance of other operations. This partly because foreign bodies, often of considerable size, were buried in the wound, but mainly because as a result of prolonged manipulation and rough handling and the use of tools ill adapted to the purpose, there was left at the end of operation a large amount of tissue so hopelessly devitalized that an abundant culture material was provided for even the slight infection which inevitably took place during the course of the most carefully conducted operation.

Of the many ingenious devices employed for permanently fixing broken bone ends in their proper relation to each other, chromicized catgut, wire, screws and silver plates were the most serviceable. If the surgeon could be assured of a perfectly sterile No. 3 catgut so largely deprived of chromic acid as not to prove irritating to the tissues, this would be the material of choice in all cases where suture or encircling ligature was applicable.

Screws were extremely serviceable in that they represented foreign bodies of moderate size, were readily applied and would often hold bones in perfect apposition. They were especially applicable to the repair of oblique fractures of long bones. In fractures of the extremities of these bones the cancellous tissue gave a grip so feeble as to make their use of little service unless driven through and through.

The proper application of a screw implied the selection of an almost cylindrical instrument with a deep thread cut clear to the head, and of such length as to pass completely through the bone at right angles to the line of fracture, but not beyond. Screws selected from the carpenter's tool box and the majority of those sold by surgical instrument makers were ill adapted to the purposes of bone surgery, since the thread was lacking where it was most useful and the pronounced conical shape greatly and uselessly increased the difficulty of driving the screw home.

The easy application of the screw was dependent on the proper selection of a drill and the use of a clamp so devised that the bones having been placed in accurate apposition were immovably held while the drill was being used and the screws were being driven home. The drill should be of such size that it bored a hole through both fragments the full length of the screw and of diameter slightly greater than its core. When but one of the two fragments was adequately drilled, as the screw was driven in it pushed the bones apart in place of bringing them together. The same result followed after having used the drill to a proper depth when the relation of the fragments to each other was changed; this frequently happened when the bones were loosely held in the bottom of the wound by the fingers of an assistant. This should be obviated by the use of bone clamps which should be powerful enough to hold the largest bone in their grasp. Those he exhibited served the purpose well, as did the forceps devised by Arbuthnot Lane. The drilling should be done either by an electric or foot engine. The use of any other instrument was not only awkward and time consuming, but exposed the patient to the danger of serious trauma. When wire or gut was to be passed through drill holes, the instrument should be provided with an eye near its cutting end through which, when it had been driven completely through the bone, could be passed a guiding thread. McCurdy accomplished the same purpose by a notch placed just above the end of the instrument.

The silver plate found its most useful application in transverse fractures. Its proper fitting was made easy by the use of grasping instruments which not only held the two bones in accurate apposition, one with the other, but also secured the plate firmly in place while the holes were being bored and the screws applied. The starting of the screws in the drill holes, particularly in the treatment of broken small bones, such as the ulna, clavicle or fibula, or when the fragments to be held in apposition lay at the bottom of a deep wound, was greatly facilitated by a screw-driver which firmly held in a jaw devised for the purpose the screw until it was fixed in its drill hole. Such an instrument he exhibited.

The open treatment of simple fracture should not be regarded as an emergency operation, and considering the fact that, for instance, nine out of every ten adults who sustained a fracture of the shaft of the femur exhibited as a result of conservative treatment permanent deformity and crippling, it would seem desirable to practise formal operation more frequently than is now done.

SOME EXPERIENCES IN THE OPERATION OF THYROIDECTOMY, PARTIAL AND COMPLETE.

Dr. **Francis J. Shepherd**, of Montreal, said his first operation was in 1883. In the first 25 cases he operated upon he employed the method of Socin, viz., enucleation, but, meeting with two severe cases of secondary hemorrhage, he gave up this method in the larger tumors for excision.

In speaking of the relation of the recurrent laryngeal nerve to this operation, he stated that only once in about one hundred operations had he wounded the laryngeal nerve. He mentioned that paralysis of one nerve due to pressure of the tumor was quite common, and in his experience it was on the side opposite to that of the largest development of the tumor.

He dwelt on the importance of having the larynx examined before operation, for if one cord was found paralyzed the operator would necessarily be more careful of the other.

The amount of hemorrhage during operation might be considerable and it was waste of time to try to secure the bleeding points for the bleeding veins were very friable. In cases of free bleeding he rapidly turned out the whole tumor and secured the superior and inferior thyroid arteries.

He had met with several cases of anomalous gland, where the upper cornua almost met behind, surrounding the trachea and esophagus, and one case where the gland grew between the trachea and esophagus.

The indications for operation in simple goitre the operator considered to be as follows:

(1) Progressively increasing size of the tumor.
(2) Rapid growth, with dyspnea.
(3) Narrowing of the trachea.
(4) Difficulty in swallowing.
(5) Alteration of the voice.
(6) Tachycardia and increasing nervousness.
(7) Inconvenience and deformity due to the size of the tumor.

As regards anesthesia, Dr. Shepherd stated that he always used general anesthesia. He commenced with chloroform, then took up ether, and now used equal parts of ether and chloroform. So far he had had no death and no alarming symptoms. He thought the dangers from general anesthesia had been much exaggerated and that in a few years more thyroidectomies would be performed under general anesthesia than at present.

He had operated in seven malignant cases with one permanent recovery, and agreed with Bloodgood that where carcinoma infiltrated no cure followed extirpation. He had had no deaths in simple goitres, though he had had two following operation in exopthalmic goitre. In operating, Dr. Shepherd preferred the straight incision internal to the sternomastoid, and he tied the superior thyroid before turning out the gland; then the inferior thyroid and recurrent nerve were looked for and identified. After operation he used a drainage tube for twenty-four hours; sometimes if there had been much oozing he packed with iodoform gauze. High temperature occurred after operation in 60% to 80%. He had seen only one case of myxedema following extirpation of the gland, and this was in a case of malignant disease. The dangers of operation were stated to be: Shock, hemorrhage, injury to the recurrent nerves, infection, pneumonia, heart failure, etc.

In only one case had tracheotomy to be performed.

As he intended reading another paper on the surgical treatment of exophthalmic goitre, this subject would not be considered.

A NEW METHOD OF UTILIZATION OF THE SAC IN THE RADICAL CURE OF HERNIA.

Dr. Roswell Park, of Buffalo, said the method consisted simply in utilizing what was usually entirely dissected away, namely, the sac, and in making of it the suture material with which the canal itself was closed.

Briefly, the procedure was as follows, especially with inguinal hernia: To isolate the sac, then to empty it, and to clean it of all superficial fat. It was thus separated from the cord and made to appear as a distinct separate structure up to the level of the internal ring. His usual procedure for many years had been to penetrate the abdominal aponeurosis at a point opposite the internal ring, with forceps made for the purpose with alligator jaw, although these were not at all essential. The forceps introduced through this opening was made to appear lower in the inguinal canal and here to seize the sac and, in the act of withdrawal, pull it after it, and thus bring it out at the punctured point. Here he used to twist the sac, ligate the neck, and tack it in place with one or two chromicized sutures. He had now modified the procedure in such a way that instead of cutting off the sac outside the point where it was fastened he utilized it as a band of suture material, with which a coarse but strong suture was made, binding together the lateral margins of the inguinal canal. Of course, much would depend upon the thickness and length of the sac. Old and large sacs would be far too cumbersome for this purpose and short sacs would be too short so serve as sutures when twisted into a cord. These difficulties were easily overcome by either reducing the sac, cutting out a strip which could be used for the purpose in one case, or in the other lengthening it by a division, by which a sac two inches long could be so divided as to furnish a cord five or six inches in length.

Having prepared the sac, or so much of it as was needed for the purpose, it might be now used in two or three ways. One might thread it into the eye of a very large needle, such as was used for carrying the silk by which we managed a chain saw, or one might use a Cleveland ligature carrier, passing it through the tissues on either side as if it were an ordinary needle, then grasping the end of the sac and pulling it back through the openings thus made as the instrument was withdrawn. Sometimes he had passed into the end of the sac a silk suture, threading it into the larger needle and making it serve as a means of traction, the procedure varying a little with the density and strength of the sac wall. Again, in certain cases, that portion utilized might be divided into halves, making, as it were, two tapes which could be used for making a shoe-lace suture of the pillars of the ring by either of the expedients just mentioned. When the ends were drawn down at the lower end of the ring they might be tied and fastened with a suture.

The advantages of this method were:

(1) It afforded almost as perfect and complete a method of closure of the inguinal canal as did any other.

(2) It utilized a portion of this sac which would otherwise be quite discarded and substituted fresh animal suture of the patient's own tissue for foreign animal material, while, at the same time, under ordinary circumstances, its sterility might be guaranteed.

(3) While he had not had opportunity to demonstrate the fact, he thought it fair to assume that such tissue so used did not disappear by absorption, as would tendon or other foreign material, but rather was organized and served as an additional means of strength and security, forming, as it were, a series of bridges or transverse fastenings by which the obliteration of the inguinal canal should be more securely attained.

Of course, the method could not be applied to all cases and could never be expected to always displace other procedures, nor should one ever think of adopting it when he was not operating deliberately and in the absence of all infectious processes. The same principle was applicable to many cases of femoral hernia, although here it would necessarily require some modifications.

He had not yet been able to resort to this procedure in a large number of cases, but in those in which he had so far used it it had given very satisfactory results.

THE USE OF THYROID EXTRACT TO SHORTEN COAGULATION TIME OF THE BLOOD.

Dr. William J. Taylor, of Philadelphia, advised that it be used in cases of hemophiliacs where surgical operation was demanded, or where they had received any accidental wound, and also in patients whose blood had been altered by disease. He stated that normal blood was not affected in any way by the use of thyroid extract, even where its use had produced distinct constitutional effects; that it acted only upon blood which lacked fibrin ferment. He mentioned the fact that A. E. Wright had found that the coagulation time of the blood was lengthened by starvation and shortened immediately after a hearty meal and the efficiency of the action of calcium chloride was increased by combining it with an albuminous substance, such as an aqueous extract of thymus, thyroid, testicle, gastric and other mucous membrane.

He cited three cases of bleeders in which thyroid extract was used with marked benefit, and mentioned one instance in which it was used in a case of profound jaundice due to obstruction of the hepatic duct. He recommended that in all cases of suspected or probably delayed coagulation time that the blood should be carefully tested and that the dried thyroid extract should be given in three-grain doses in capsules three times a day, and stated also that it had been used with very great effect in several cases of purpura with spongy and bleeding gums, occurring during the course of typhoid fever.

HYPERPLASTIC TUBERCULOSIS OF THE INTESTINES AND PERITONEUM.

Dr. Charles B. Nancrede, of Ann Arbor, Mich., put on record another instance of that rare manifestation of tuberculosis in the intestinal tract, the hyperplastic form, instances of which had been reported during the past fifteen or eighteen years. He gave a brief historical account of the cases reported by various authors.

Treatment resolved itself into excision of the affected portion of the bowel. Doubtless fresh air, sunshine, tonics and the ordinary measures addressed to the treatment of tuberculosis located elsewhere might serve as roborants and increase the peritoneal tissue resistance, as well as that of other parts, but no direct benefit could be expected as was the case in certain instances of ordinary tubercular peritonitis.

A REVIEW OF FIFTEEN HUNDRED OPERATIONS UPON THE GALL BLADDER AND BILE PASSAGES, WITH ESPECIAL REFERENCE TO THE MORTALITY.

Dr. William J. Mayo, of Rochester, Minn., said the mortality in 1,500 operations was 4.4%. In the last series of 500 it was 3.2%. Every operated case dying in the hospital, without regard to time or cause of death, was counted as an operative mortality.

Of operations for uncomplicated gallstone disease, the mortality, ½ of 1%, was due to accidental causes. Complications, the result of delay, caused more than nine tenths of the death-rate; 95% of all complications occurred in patients who had had marked evidences of gallstone disease and ample period of good health for safe operation.

The now recognized necessity for early operation in appendicitis is due to the former high mortality attending secondary abdominal complications. The same reasons held good for early operation in gallstone disease, only it was involvement of liver ducts instead of peritoneum which gave fatal complications.

Of 845 cholecystostomies, the mortality was 2.13% In the last series of 500, it was 1.47%; normal operation for uncomplicated gallstones in an otherwise healthy gall bladder.

Of 319 cholecystostomies, the mortality was 3.13%. In the last series of 500 it was 1.62%. The operation was indicated in all cases in which the gall bladder had lost its function, especially in cystic duct obstructions and for malignant disease. It was a slightly more serious operation than cholecystostomy, but had a growing field of usefulness in all cases in which the gall bladder was involved.

Common duct operations, 207 cases. Group 1: 105 cases; 3 deaths, 2.9%, consisting of those cases having gallstones in the common duct operated during the quiescent period; jaundice and infection moderate. Group 2: 61 cases; 10 deaths, 16%, in which there was active infection involving the ducts of the liver, and jaundice. Patients suffered from Charcot's fever (fever and ague type). Obstruction was severe, but not continuously complete. Group 3: 29 cases; 10 deaths, 34%, complete obstruction of common duct, in which no bile passes into the intestinal canal, elimination taking place by means of the kidneys and skin. Group 4: Malignant disease: 12 cases; 4 deaths, 33⅓%; gall stones present in nearly all.

Pancreas involved in 86 out of the 1,500 cases; 4 acute, with 2 deaths; 6 subacute, with 1 death; 9 cancer, with 5 deaths; 67 chronic, without marked effect on the mortality.

(To be continued.)

Recent Literature.

Letters from a Surgeon of the Civil War. Compiled by Martha Derby Perry. Illustrated from Photographs. Boston: Little, Brown & Co. 1906.

The events of the Civil War are not likely soon to lose their interest for Americans either of the generation which carried it on, or of the succeeding ones. In this new volume we have an exceedingly entertaining account of the experiences of a surgeon who left his medical studies in Boston in 1862 to serve as a volunteer contract assistant surgeon in a military hospital. Dr. Perry, whose letters form the substance of the book, served with many vicissitudes practically throughout the war, and after many years the letters have been collected and published in most attractive form. The book makes no pretence at giving a complete picture of the campaigns of the war, but it serves the more useful purpose of describing in graphic language the feelings and sensations of an active participant in the struggle. Such books are always well worth publication.

The Changes Produced by Inflammation in the Conjunctiva. (Hunterian Lectures, R.C.S., 1905.) By M. S. Mayou, F.R.C.S. New York: William Wood & Co. 1906.

The author states that "the chief object of this book is to record the results of over three years' work on a subject which is perhaps one of the most difficult and at the same time one of the most important in pathology, namely, inflammation." From this we infer that the book is not to be regarded as a text-book but as an original monograph. Judging it as such, we find that it contains nothing new of importance. On the other hand, as a text-book it is incomplete and superficial. The illustrations are highly diagrammatic. The author throughout gives much consideration to plasma cells, which he believes to be of endothelial origin, but his observations in this connection are not convincing.

F. H. V.

THE BOSTON

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A PLAN TO INCREASE THE EFFICIENCY OF MEDICAL TEACHING.

THE Harvard Medical Alumni Association has recently sent out a circular to its members asking for subscriptions, large or small, to be used for furthering the teaching in the Harvard Medical School. It is pointed out in this circular that the school is about to move to an outward habitation which is sure to be all that the alumni could desire. The query is raised whether the teaching therein will be as complete and as masterly as are the buildings.

The reforms which have taken place in medical teaching during the past few years have necessitated a very considerable increase in the number of men giving instruction. The reaction against the lecture system and purely didactic instruction in general has led to teaching by small sections, which naturally means more teachers. It is altogether right and proper that the men who devote themselves to this teaching should be suitably rewarded, but adequate funds for this purpose have not been forthcoming. It is manifest that unless young men are suitably paid for their instruction they will regard their teaching merely as a means to an end and not an end in itself. This must inevitably mean that the enthusiasm, as well as the time, which should be given to teaching will easily and naturally be diverted when the claims of practice or of other interests begin to become insistent. Not only from the point of view of the man giving his time to the teaching, but also from the standpoint of the school itself, it is eminently desirable that instruction by the younger men should carry with it not only a certain amount of prestige, but a money remuneration adequate to the work performed.

During the past year, the circular before us states that one clinical instructor has been paid a salary sufficient to command most of his time, which has resulted in excellent work at his hands as shown by the enthusiasm of the students and the satisfactory results accomplished. No doubt, young men recently from their hospital appointments will continue to be found glad to undertake teaching during their years of waiting for actual practice. The teaching of these men is often admirable, but it is certainly true that when an exceptional teacher appears, his services and his enthusiasm should be retained by making his teaching a primary object and by demanding in consequence a definite and perhaps considerable portion of his time.

To meet this situation, which is by no means peculiar to the Harvard Medical School, the Alumni Association, represented by Dr. Alfred Worcester, president of the association, and Drs. R. C. Cabot, E. P. Joslin, Malcolm Storer and David Cheever, has conceived the idea of requesting from each alumnus a certain yearly contribution to be used as a fund from which salaries may be paid. The object in sending out the circular is not only to interest those who may have a considerable amount of money to devote to this purpose, but to gain the support of every graduate of the school, even if it be to the extent of but one to five dollars a year. Should each alumnus average five dollars as a yearly subscription, an amount of money would be raised which would make a very material change in the teaching of the school. The circular goes on to say that it is not proposed to pay adequate salaries, but simply to raise existing salaries to a living wage. The corporation has accepted the custody of this fund, should it be raised, and has agreed to administer it as may seem wise to the councillors of the association. The following vigorous statement, with which we agree, is made in the course of the circular:

"Your committee cannot but feel that this movement is but the beginning of one of vast importance for the future, for the natural and automatic growth of the fund will in time assure a large corps of earnest and competent instructors. At present there is no provision for the education of future teachers. On graduating, a man lies fallow and generally retrogrades for the two or three years that elapse before he gets his first hospital appointment and becomes available for teaching purposes. By the scheme we propose he will be developing all the time, and the first three years after graduation will be perhaps the most valuable of all in his preparation as a teacher. A school is made good or bad not by its buildings but by its teachers. The alumni cannot create teachers, but they can help to attract the best by providing adequate salaries."

We have, from time to time, expressed the opinion, which we are glad to take this opportunity of reiterating, that more attention must be given in the future to the education of teachers. The mere fact of being a good practitioner, or a skilled and learned man in some department of medicine, does not in the least imply that such a person is a good instructor of students. It is to be hoped that the plan which the Harvard Alumni Association presents will accomplish its end not only by rewarding more adequately the younger teachers, but also by so far putting a premium upon teaching that young men peculiarly adapted for this work will be encouraged to perfect themselves as teachers to whom increasing opportunities will be offered, as their experience and capacity grow. We trust the plan of the Alumni Association will meet with vigorous and cordial support.

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OUR ALLEGED THERAPEUTIC SHORTCOMINGS.

It is evident that we are in a state of transition regarding many matters in medicine, and in no department is this more clearly shown than in therapeutics. A healthy skepticism has gradually come to take the place of a too excessive faith in certain means of treatment, and the medical mind is showing evidence of breadth, which would hardly have been conceived possible fifteen or twenty years ago.

In view of these facts it is an interesting phenomenon that certain men high in the councils of the profession are taking a pessimistic view of progress in therapeutics. We hear much of the shortcomings of our medical schools in the teaching of therapeutics, and complaints are continually raised that the modern student of medicine finds himself miserably equipped as a writer of prescriptions when he enters upon his medical career. This, in some quarters, is apparently regarded as a serious menace to his success as a practitioner.

Very recently, at a meeting held in New York, a distinguished physician is reported to have said that it is a lamentable fact that the young doctor nowadays is relatively less fitted to practise the art of healing than the young doctor of ten years ago; that the average student when he begins the practice of his profession knows little or nothing about compounding prescriptions, and that he is destined to become a therapeutic nihilist, or resort to illegitimate methods of practice. It is extraordinary that such statements as these should be made in this period of medical knowledge, and certainly they should not go unchallenged. It is a peculiarly narrow view of therapeutics which confines medical practice to the administration of drugs. If we have learned anything in the past few years, it is that drugs, while always useful in certain conditions, constitute but a small part of the physician's weapons against disease. It is, in fact, difficult to estimate how much medical practice has benefited through outgrowing the idea that treatment consists primarily in the administration of drugs; we must, therefore, take decided issue with the opinion that our present-day medical students are less well prepared to practise their profession than their predecessors because of their imperfect knowledge in compounding prescriptions. Admitting the fact, which is no doubt true, we cannot look upon this lack of knowledge as an unmitigated evil. Simplicity in prescribing has been the watchword of the best practitioners for many years. It is relatively seldom that a compound prescription is desirable, and when it is, it certainly requires no extended knowledge to provide it.

What the student has gained is a breadth of view in his ideas of medical practice of which the student of thirty years ago, trained as he may have been in the compounding of often unnecessary prescriptions, stood in entire ignorance. The common sense which has come to be so important an element in successful medical practice is now an asset of the intelligent medical student as never before. Under these circumstances to say that the young physician is less able to practise his profession intelligently than the young physician of several decades ago is so far flying in the face of the facts that the matter would hardly be worth mention had it not been so often contradicted in recent discussions. We have not the slightest hesitation in saying that the possibilities of medical practice were never so great as now, and that a degree of intelligence, common sense and positive knowledge, greater than ever before, dominate the general therapeutic situation.

THE ACCIDENTS OF SUMMER.

The recreation of the people this summer appears to be attended with greater loss of life and injury than ever before. The extraordinary devices prevalent at our poorer resorts designed to supply new sensations, are, in a measure, responsible for the lamentable list of injuries which appear after each Sunday or holiday. No doubt the management takes every possible precaution that its " scenic railway " or " looping the loop " be provided with all possible safeguards. The design nevertheless is to offer the greatest amount of excitement, which means danger, compatible with the dictates of the law and the risk of suits for damages. There can be no question that with the multiplication of these various devices, unheard of a few years ago, the danger to the pleasure-seeking public is very greatly enhanced. It is, however, also noteworthy that the accidents as yet from these sources are comparatively few.

A more prolific danger apparently lies in the water, which is not new and which in itself offers no dangers now which it has not for all the years of the past. Here again, however, the use of canoes in inexperienced hands and a general recklessness which is apparently inherent in the young continue to provide an appalling list of accidents each week. It is reported that no less than twelve persons were drowned last Sunday in New England alone, ranging from the age of four to forty-five. It is probable that with the increase of population and its concentration in large cities more persons seek recreation than in earlier times, and therefore, the possibility of accident is materially increased. However this may be, the fact remains that lives are needlessly lost among the poorer part of the population, which were amusement less eagerly sought and greater precautions taken, might easily be averted.

Among the more well-to-do class the automobile stands high in the list as conducing to accident and injury. The whole situation is one to be looked upon with calmness, but also with a determination to rectify, as far as may be, a constantly growing menace to the public welfare. It is manifestly impossible to control persons beyond a certain limit. Recklessness cannot be influenced by the stringency of the law, except in a most insignificant way. The combination, however, of just legal enactment, with a strong public opinion, should do much toward minimizing the dangers which assail the rich and poor alike in their somewhat over-enthusiastic search after pleasure and recreation.

MEDICAL NOTES.

Deaths in Train Wrecks. — According to the accident bulletin, recently issued by the Interstate Commerce Commission for the three months ending March 31, 1906, it is stated that the casualties to passengers and employees amounted to 18,296 of whom 1,126 were killed. This is a slight increase over the numbers of the preceding three months. Two hundred and seventy-four passengers and employees were killed in train accidents; the total number of collisions and derailments was 3,490, and the amount of damage to the railroads amounted to nearly $3,000,000. Eighty-four employees were killed in coupling and uncoupling cars and engines, which closely approximates the number killed by this means during the previous quarter.

In Honor of Professor Pozzi. — The twentieth year of the professorship of Prof. Samuel Pozzi was appropriately celebrated at the Annexe Pascal of the Broca Hospital in Paris the early part of this month. He was presented with a gold medal of special design and a " Golden Book," which contained a series of unpublished articles by leading gynecologists and surgeons. The presentation took place in the amphitheatre of the Pascal operating room, and was largely attended by many distinguished medical men. Dr. Debove, dean of the faculty of medicine, presided at the meeting, and Dr. Jayle presented the " Golden Book." In his speech of acknowledgment Professor Pozzi gave a history of the chair of gynecology of the faculty of Paris, and expressed his appreciation of the honor paid him in appropriate language.

Mortality from Pneumonia in Chicago. — According to the last report of the *Bulletin* of the Chicago Department of Health during the thirty-five weeks, beginning with the week of Nov. 4, 1905, and ending June 30, 1906, pneumonia was returned as the cause of 3,261 deaths in that city, out of a total of 19,116 from all causes. While consumption was reported as the cause of only 2,250 deaths. The respective proportions of the two diseases were — pneumonia, 17.1%; consumption, 11.8% of the total deaths. Compared with the corresponding period of 1904–5 this is an increase of 3% in the pneumonia death-rate per 10,000 of population and of 1.8 per cent in the percentage of total deaths. Consumption, on the other hand, shows a reduction of 1 % in the population rate and of 1.7% in the percentage of total deaths.

The total deaths from all causes during the latter period were 745 more than during the period of 1904-5, and of these, nearly one fourth (24.5%) were caused by pneumonia, while only 5.2% of the excess was due to consumption.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 25, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 11, typhoid fever 8, measles 41, tuberculosis 43, smallpox 1.

The death-rate of the reported deaths for the week ending July 25, 1906, was 20.18.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, July 21, 1906, was 219, against 239 the corresponding week of last year, showing a decrease of 20 deaths and making the death-rate for the week 18.96. Of this number 122 were males and 97 were females; 214 were white and 5 colored; 157 were born in the United States, 60 in foreign countries and 2 unknown; 54 were of American parentage, 145 of foreign parentage and 20 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 26 cases and 1 death; scarlatina, 12 cases and 0 deaths; typhoid fever, 9 cases and 0 deaths; measles, 22 cases and 1 death; tuberculosis, 50 cases and 27 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 16, whooping cough 5, heart disease 12, bronchitis 3 and marasmus 4. There were 23 deaths from violent causes. The number of children who died under one year was 56; the number under five years 77. The number of persons who died over sixty years of age was 44. The deaths in public institutions were 76.

There were 2 cases and 1 death reported from cerebrospinal meningitis reported during the week.

BEQUESTS. — By the will of the late Mr. Patrick F. Sullivan, of Boston, many public bequests are made, amounting to $60,000. Among the hospitals and similar institutions which are beneficiaries under the will are Carney Hospital, St. Mary's Infant Asylum and the Home for Consumptives, $5,000 each; the Holy Ghost Hospital receives $2,500, and many charities of a less medical character also receive bequests.

MALARIA AMONG UNITED STATES MARINES. — Thirty-nine United States marines have been under treatment for malaria at the Naval Hospital at Chelsea, Mass. They contracted the disease in Panama through exposure to malaria-carrying mosquitoes, having been ordered to an infected region and improperly protected from the bites of the mosquitoes. The marines were sent north owing to the lack of danger of further transmission of the disease through the mosquitoes of this region. Many of the patients have already been discharged.

BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL. — By the will of the late Mrs. Martin Brimmer it is announced that the Massachusetts General Hospital is to receive $20,000. Fifty thousand dollars is also bequeathed to Harvard University.

A CENTENARIAN. — The death of Mrs. Mary Ann Dickerson at New London, Conn., is announced at the age of one hundred and four. She was born in Connecticut, brought up on a farm and had worked hard throughout her life.

NEW YORK.

BEQUEST TO MOUNT SINAI HOSPITAL. — Among the charitable bequests in the will of Charles Rubens of New York, who died recently in Paris, is the sum of $5,000 to Mount Sinai Hospital.

APPROPRIATION FOR CORPS OF MILK AND FOOD INSPECTORS. — With a view to keeping the death-rate as low as possible during the summer months, and especially among infants and young children, the Board of Estimate and Apportionment has granted the Health Department an extra appropriation of $100,000 for additional members of the corps of milk and food inspectors.

GIFT TO NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL. — A gift of $5,000 has been made to the New York Post-Graduate Medical School and Hospital by Mr. and Mrs. Edgar E. Brandon, of Oxford, Ohio, in memory of their infant son, William Templeton Brandon, to establish an obstetric ward in the Post-Graduate Hospital, where, in connection with scientific obstetrics, the complications and discomforts of pregnancy and of the post-partum period may be studied, and, as far as possible, alleviated.

FISHING PRIVILEGES. — There is at present a rather novel conflict between the state authorities on the one hand and the local authorities of Middletown, in Orange County, on the other. The water commission board of that city has decided, by a vote of three to two, to permit fishing in the three city lakes under certain rules and restrictions, to be approved by the Common Council; this decision being in direct defiance of one made by the State Commissioner of Health who after a largely attended public hearing held at Middletown, recently refused to grant the fishing privilege. The Common Council, it is believed, will sanction the action of the water board, and the final outcome of the matter is looked forward to with interest.

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Miscellany.

THE MANUFACTURE OF PAUPERS BY HOSPITALS.

The *Spectator*, which has been publishing a series of articles under the general heading "The Manufacture of Paupers," reached last week the consideration of the pauperizing effect of hospitals. The article gives a short history of the various attempts which have been made to remedy the hospital abuse in London; it mentions first the report of the Medical Committee presided over by Sir William Ferguson, which in 1870 expressed the opinion that there then existed a great and increasing abuse at various hospitals and dispensaries in the metropolis. The article then quotes the recommendations of the House of Lords Committee, which reported in 1889, records the foundation of the King Edward's Hospital Fund for London, and recalls the fact that the number of out-patients and casualties attended at 86 hospitals had risen from 1,056,852 in 1887 to 1,775,422 in 1904. The *Spectator* expresses the opinion that the metropolitan hospitals, by the maladministration of their out-patient departments, are sapping the independence of the people and helping to manufacture paupers. "These institutions," our contemporary goes on, "are managed by men of great ability. Some of the managers are trained business men; others have been, or still are, in one or another of the professions. Clergymen of all denominations, soldiers, sailors and lawyers, all meet to assist in the deliberations of the board of their pet charity. As it would be supposed, men such as these, assisted as they are by secretaries who are, for the most part, extremely able men, imbued with boundless energy, and loyally devoted to their own institution, do regulate the affairs of their own charities in a very satisfactory and enlightened manner; but it is much to be wondered at that they have not long before this evolved some scheme whereby the present disorganization in the administration of our metropolitan medical relief could be changed, and order and system produced out of chaos — some well-thought out method that might bring about co-operation between the charities themselves, and between them and the infirmaries and dispensaries under the Poor Law. It will, no doubt, be a painful surprise to many people to learn that there is a large body of thoughtful and experienced people who think that medical relief as it is now administered in London, more particularly through the out-patient and casualty departments of our voluntary hospitals, and through the free and part-pay dispensaries, is a frightful source of evil, inasmuch as it is to a large extent a waste of energy and material, and is a means of pauperizing the recipients." The article concludes by expressing the hope that "the Prince of Wales and the Council of King Edward's Hospital Fund for London will before long turn their attention to the out-patient departments, and so ameliorate their administration that the accusation made at present, that our hospitals assist in the manufacture of paupers, may be removed." The article is but a sketch of a very large subject, but its conclusions, coming from so impartial an exponent of public opinion as the *Spectator*, cannot fail to have weight with all thinking laymen. — ***British Medical Journal.***

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A METHOD OF TREATMENT OF HEMORRHAGE.

G. Crile and D. H. Dolley, Cleveland (*Journal A. M. A.*, July 21), published a preliminary note describing a new method of treating exhausting hemorrhages. Their research was directed to finding a means of successfully treating those cases in which the usual methods of stimulation, bandaging and infusion could not relieve and death seemed inevitable. An effective method in these cases must supply more isotonic blood, and on account of the risks of clotting and deterioration the ordinary methods of transfusion are not applicable. They utilized the recent technic of Carrel in a large number of experiments, the details of which will be published later, in the following manner: The proximal end of an artery of one animal, the donor, is united to the artery or vein of another animal, the donee, by an end-to-end anastomosis. As soon as the union is impervious and complete the arterial blood of the donor is allowed to flow into the vessel of the donee until a sufficient amount has been transfused. If the proximal ends are thus united there is no danger of excessive hemorrhage, as the two pressures will balance at some point lower than the normal. Every degree of hemorrhage was treated in their experiments, and so long as any rhythmic contraction of the cardiac auricle persisted the animal could be resuscitated, even though there was not the slightest circulation. There was no evidence of blood degeneration; the animals seemed as well with their fellow's blood as with their own. After learning the technic the anastomosis can be done in a few minutes. The authors have performed such an anastomosis between the radial artery of a man and the basilic vein of his wife and readily transferred some of the man's blood to his wife's circulation. The method, they claim, is applicable in any case of hemorrhage not amenable to ordinary methods, and they are convinced that the factor of blood loss can be eliminated.

Correspondence.

LETTER FROM PARIS.

The Bulb Mania; or Reign of the Syringe.

(*Special Correspondence.*)

Paris, July 5, 1906.

Mr. Editor: During the last few years the treatment of disease has been undergoing, in Paris, from the view point of the general practitioner, a change so remarkable and radical that a brief description of it may be of interest and possibly of service to physicians at home.

The change referred to consists herein: That a considerable number of diseases and conditions, for which, in former times, pills, powders and draughts were prescribed, have now come to be treated *by the hypodermic method exclusively.*

The first step in this new therapeutic departure was made by Albert Robin when, some twelve years ago, he launched his famous glycerophosphates. This preparation had to be given hypodermically every day for a period of five weeks, and was applicable in cases where tonics were indicated, and particularly in a great many forms of that protean and fashionable disorder, neurasthenia.

Rarely has any therapeutic novelty been hailed with such a hallelujah chorus as was Robin's! It is not necessary to recall the great prevalence of these neurasthenic states at the present age, nor the effect of any new and especially of any striking method of treatment in such cases. The injections were administered by the physician himself, with due solemnity and with strict antisepsis; the syringe was boiled at each visit *coram ægrotæ;* the patients — a race of inexhaustible tolerance — were duly impressed and delighted; and the whole affair was a downfall of manna such as the needy practitioner had not experienced since Paquelin first placed the thermocautery in his hungry hands.

A physician here who could be mentioned, with a wide practice among American *névrosées,* divined the possibilities of the method from the very start; and it was in quantities of *500 at a time* that he used to order these little bulbs of glycerophosphates from the druggist! For a while the waters of the Pactolus flowed right past his front door, and it was easy at five o'clock functions to pick out his patients, on account of their preference for the erect position, their gluteal regions being so larded with deep injections as to render chairs a delicate subject.

The profession soon realized that the method was too productive not to be developed in further directions, and other remedies began to appear for hypodermic administration. Various salts of mercury, for instance, to mention one of the most important; and not long afterwards Bouchard proclaimed at the Cairo meeting the efficacy of small injections of sodium salicylate, and this too was put up in the bulb form.

Then came Levi's advocacy of Trunecek's serum for arteriosclerosis, and for a time this large class of patients sought to undo the effect of disease, high living and Father Time by this puerile device. A man once told me that his physician had given him two hundred of these injections.

Next in order was Armand Gautier with his new preparations of arsenic, cacodylic acid and arrhenal, which gave a tremendous extension to the method, as not only did they have to be given hypodermically, but they were capable of infinite combinations with other drugs, — iron, strychnia, glycerophosphates, quinine, etc. And since that time this therapeutic means has steadily increased in importance, until we have now reached the height of what might be termed the bulb mania, or reign of the syringe. A fair idea of the point to which this method has developed will be acquired when we say that Leclere's last catalogue of these preparations covers thirty-three pages, not counting artificial serums, organic extracts, antitoxins, etc.

It is difficult in this connection to know at what to marvel most; the long-suffering dispositions of the people who supply the gluteal pincushions for the Praraz needles, or the effrontery of the medical men who propose such treatment on the most trivial pretence.

A drawing is appended of the ordinary bulb forms in which these remedies are put up. They come in tasty boxes, and are absolutely sterile. All-glass syringes are used for the injections, insuring cleanliness; and the latest improvement has been the invention of a little system whereby the injection is made directly from the bulb, an air-piston fitting on one extremity and a needle on the other. In this manner and with ordinary care no abscess is to be feared. But even when made deep into the tissues the injections are often painful; though very pusillanimous patients can be reassured by an ethyl-chloride spray.

It is idle to attempt to gainsay the merits of the system: accurate dosage, the direct administration of the drug, which no longer undergoes digestion; the possibility of avoiding dyspepsia, gastralgia and diarrhea, with irritating drugs such as phosphorus, mercury, iron and arsenic; not to speak of the psychic effect of a new method surrounded with a certain *mise-en-scène.* And the treatment has undoubtedly done great good in nervous cases, anemia, syphilis and rheumatism (especially in localized muscular pain).

But every one can see at the merest glance the opening it leaves for abuse on the part of the unscrupulous practitioner!

Thus, passing over the myriads of injections that have been given on no indications whatever, one enterprising individual of this category got up a so-called injection of lithia, which he announced as sovereign in all chronic gouty and rheumatic conditions, as his very own invention, and as only to be had from him. And for a while, until people found out that the results of his injections were absolutely *nil,* the patients swarmed on his door bell like bees on a new hive!

Another man, a popular juggler with electric currents and multicolored lights, let it be known that he possessed a preparation of arsenic different from those in the hands of other physicians; and for a while the tide of anemic women flowed strongly in his direction.

Other physicians concocted compound bulbs of their own, ringing the changes in the number and proportions of the fundamental tonic remedies, the bulbs coming in boxes duly marked with the medical man's name: "Dr. Smith's Serum," etc.

In short, there has been a very sorry side to this bulb question, and signs are now not wanting that the method has passed its prime, people having discovered that as a general thing they are no better after submitting to this most inconvenient and expensive treatment than they were under the former simpler methods. Some physicians have become so sensitive, through the charlatanism into which the method has degenerated, that even in cases where they think it is indicated they hesitate to propose it, hoping that the initiative will come from the patient in person.

That the method should have been thus debased is certainly a great pity, since in the hands of suitable men and within proper limits, it is a most valuable one. At any rate, as an incident in medical practice the history of the method has been interesting, and as such has seemed worthy of description in these pages.

Since my last letter there has been another séance at the Academy on appendicitis at which Professor Blanchard in some extended remarks accused "worms" of playing an important rôle in the etiology of this conspicuous malady!

"Spectator."

CORRECTIONS.

DARK HARBOR, ME., July 21, 1906.

Mr. Editor: A personal reading of the proof of my paper on the "Principles of Feeding in Typhoid and in Other Fevers"[1] being impossible on account of absence from New York, several errors appear in the published article which require correction.

In the chart the *second* hundred cases from the Monsall Fever Hospital under the head of "Milk and Soft Diet," were not included in the final computation, as the *solid* diet was given only in the *first* hundred cases. The statement in regard to the *second* hundred cases was not sufficiently clear, moreover, to permit me to include them under the *fluid* diet.

In the statistics of the Kief Military Hospital the percentage of hemorrhage is 1.25 instead of 1.7; the percentage of perforation 0.31 instead of 0.19, errors which do not affect the final computation.

In the final computation the percentage of relapses should read 15.2 and the percentage of perforation 2.38, instead of 11.38 and 2.40, respectively. The basis of computation in the former instance is 315 instead of 325 cases. In the final paragraphs in the first column of page 4 the sentence should read "hemorrhage *or* unusual tympanites."

Yours truly,
FRANCIS P. KINNICUTT.

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[1] BOSTON MEDICAL AND SURGICAL JOURNAL, July 5, 1906.

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RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 14, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,575	699	Quincy	3	2
Chicago	498	167	Waltham	3	1
Philadelphia	—	—	Gloucester	8	3
St. Louis	—	—	Pittsfield	8	1
Baltimore	217	101	Brookline	2	—
Cleveland	—	—	North Adams	7	1
Buffalo	—	—	Chicopee	7	5
Pittsburg	—	—	Northampton	4	0
Cincinnati	—	—	Medford	6	2
Milwaukee	—	—	Beverly	3	—
Washington	—	—	Hyde Park	3	1
Providence	68	20	Newburyport	3	—
Boston	174	54	Leominster	—	—
Worcester	25	3	Melrose	4	1
Fall River	50	39	Woburn	4	3
Cambridge	23	7	Marlborough	4	1
Lowell	50	31	Westfield	3	1
Lynn	17	2	Peabody	—	—
New Bedford	20	12	Revere	4	2
Springfield	28	8	Clinton	2	0
Lawrence	31	17	Attleboro	3	0
Somerville	9	2	Adams	2	—
Holyoke	23	13	Gardner	1	—
Brockton	7	2	Milford	4	—
Malden	7	4	Weymouth	3	0
Salem	7	3	Framingham	—	—
Chelsea	15	5	Watertown	1	0
Haverhill	8	1	Plymouth	—	—
Newton	6	1	Southbridge	0	—
Fitchburg	13	6	Wakefield	—	—
Taunton	12	3	Webster	—	—
Everett	11	3			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 11, 1906.

SAWTELLE, H. W., surgeon. Granted leave of absence for two months from July 5, 1906, on account of sickness. July 10, 1906.

ROSENAU, M. J., passed assistant surgeon. Granted leave of absence for three days from July 8, 1906, under paragraph 189 of the regulations.

STANSFIELD, H. A., passed assistant surgeon. Granted leave of absence for one day, July 4, 1906, under paragraph 191 of the regulations.

SCHERESCHEWSKY, J. W., passed assistant surgeon. Granted leave of absence for two days from June 28, 1906, under paragraph 191 of the regulations.

ROBERTS, N., assistant surgeon. Relieved from duty at Fort Stanton, N. M., and directed to report at the Bureau, Washington, D. C., for temporary duty in the Hygienic Laboratory. July 11, 1906.

SMITH, F. C., assistant surgeon. Granted leave of absence for seven days. July 11, 1906.

MCCONNELL, E. F., acting assistant surgeon. Assigned to duty at Banes, Cuba. July 5, 1906.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for ten days from June 29, 1906. July 3, 1906.

SMYTH, F. R., acting assistant surgeon. Granted leave of absence for five days from July 3, 1906. July 7, 1906.

STUART, A. F., acting assistant surgeon. Granted leave of absence for twenty-one days from July 9, 1906. July 6, 1906.

WALKER, T. D., acting assistant surgeon. Leave of absence granted acting assistant surgeon Walker for eight days from June 8, 1906, amended to read six days from June 5, 1906. July 5, 1906.

GIBSON, R. H., pharmacist. Granted leave of absence for four days. July 6, 1906.

BROWN, F. L., pharmacist. Relieved from duty at Pittsburg, Pa., and directed to proceed to Baltimore, Md., reporting to the Medical Officer in Command for duty and assignment to quarters. July 7, 1906.

MCKAY, M., pharmacist. Relieved from duty at Washington, D. C., and directed to proceed to Savannah, Ga., via Cincinnati, Ohio, reporting to the Medical Officer for duty. July 7, 1906.

RECENT DEATHS.

DR. EDWARD G. TUFFS, of New York, died suddenly on July 20, at the age of fifty-five years. He was born in New York, and was graduated from the medical department of the University of that city in 1879.

DR. ROBERT H. THEYSON, of New York, died at St. Luke's Hospital in that city recently, after an operation for appendicitis. He was forty-nine years of age, and was graduated from the medical department of the University of the City of New York in 1890.

BOOKS AND PAMPHLETS RECEIVED.

Tuberculosis: The problem for the General Practitioner. By William Porter, M.D. Reprint.

A Word Regarding Mount St. Rose. By William Porter, M.D. Reprint.

Clinical Studies at Mount St. Rose. By William Porter, M.D. Reprint.

Hygiene and Diet in the Care of the Consumptive. By William Porter, M.D. Reprint.

A College Course on Tuberculosis. By William Porter, M.D. Reprint.

Some Phenomena of Tuberculosis Infection. By William Porter, M.D. Reprint.

Tuberculosis in the Mississippi Valley. By William Porter, M.D. Reprint.

Twenty-eighth Annual Report of the State Board of Health of the State of Connecticut for the year 1905. New Haven, Conn. 1906.

Preservatives in Food and Food Examinations. By John C. Thresh, M.D. (Vic.), D.Sc. (Lond.), F.I.C., and Arthur E. Porter, M.D., M.A. (Cantab.) Philadelphia: P. Blakiston's Son & Co. 1906.

Problems in Animal Metabolism. A Course of Lectures given in the Physiological Laboratory of the London University at South Kensington in the Summer Term, 1904. By J. B. Leathes. Philadelphia: P. Blakiston's Son & Co. 1906.

Annual Report of the Health of the Imperial Navy for the year 1903. Tokyo, Japan. 1906.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D., and Tracy C. Becker, A.B., LL.B., and others. Second edition. Vol. I. Illustrated. New York: William Wood & Co. 1906.

The Practitioner's Library. The Practice of Pediatrics. In Original Contributions. By American and English Authors. Edited by Walter Lester Carr, A.M., M.D. Illustrated. Philadelphia & New York: Lea Brothers & Co. 1906.

Original Articles.

GASTRO-MESENTERIC ILEUS.

BY JOHN M. T. FINNEY, M.D., BALTIMORE, MD.

In a recent communication read before a joint meeting of the Chicago Medical and Surgical Societies, I presented a report of twenty-six cases of post-operative ileus which I had observed in my hospital and private practice. Of this number, one belongs to that extremely interesting group of obstructions occurring high up in the intestinal canal. This case has seemed to me to be of sufficient interest to warrant a more detailed report. Unfortunately, the true condition was not recognized during life, owing to unfamiliarity with the clinical picture presented, nor indeed were the pathological findings at the autopsy thoroughly understood until after my attention had been called by Dr. Bloodgood to Zade's article upon the subject which had just appeared. After a careful review of the literature, it has seemed to me that sufficient attention has not been directed to this condition, the existence of which has been known since the time of Rokitansky and to which the name of "gastromesenteric ileus" has recently been given by Zade. That it is not of infrequent occurrence is shown by the increasing number of cases recorded in the literature. That it is a condition of great gravity, and one difficult to recognize, is amply attested by the fact that, with few exceptions, the condition has been recognized only at autopsy.

It is to a consideration of this form of obstruction, the conditions both anatomical and pathological which appear to be concerned in its production, and the phenomena by which it manifests itself, that I wish to direct your attention to-night.

Mrs. Susan H., aged forty-six years, married. Admitted to the Johns Hopkins Hospital, medical side, June 18, 1904, complaining of acute indigestion.

Family history: Negative.

Past history: Patient has always had trouble with stomach, and indigestion, appetite never very good, and of late has had a great deal of belching. Bowels usually constipated. In 1901, three years ago, she had a severe attack of gastritis in which she vomited a great deal, but no blood, was in bed for three months.

Present illness: In April, 1904, two months before admission, the patient was operated upon for "womb trouble." The exact nature of which is not known. Following the operation, she has been unable to keep anything on the stomach; even water causes her to vomit within five minutes. Patient says she is frequently nauseated and that fluid will regurgitate without any cause. Has had feeling of pain and distention in left side. Has lost in weight and strength, no edema of the extremities. Urine normal.

Physical examination: Color good, tongue slightly coated, pulse 92, small. The abdomen seems normal, slight epigastric pulsation, dermatographia marked. No visible peristalsis, no palpable mass, general abdominal tenderness, probably neurotic. Liver and spleen not palpable, no ascites, no jaundice. Area of stomach tympany normal. Red blood corpuscles, 4,416,000; white blood corpuscles, 5,200; hemoglobin, 81%.

July 9, three weeks after admission. The patient has continued in practically the same condition. Can take nothing but albumen or whey by mouth and even these frequently cause vomiting. Looks badly, has lost in weight and strength. Ewald test meal removed in one hour. About 50 cc. of greenish watery fluid mixed with bread removed. No free HCl. Total acidity, 12%. Lactic acid present, no blood. Oppler-Boas bacilli present.

The patient's condition remained about the same except that tenderness was also complained of in both flanks, and it was thought that quite a definite thickening and resistance in the right half of the epigastrium could be made out. She was transferred to the surgical side, Sept. 6, 1904, and was operated upon the following day.

Operation: The abdomen was opened through the right rectus incision. The stomach was slightly dilated and on the anterior wall of the pylorus there was found a whitish scar-like thickening. The pylorus admitted the tip of the finger. The duodenum was slightly dilated and high up under the liver, but was not kinked. Gall bladder normal. The pelvis was not explored. Pyloroplasty was done in the usual manner.

Subsequent history: The patient vomited immediately upon recovery from ether, and continued to do so at intervals until death. At first, the vomitus was green or yellow with some blood. After the second day, it became darker and more offensive, but not feculent. The pulse was rapid and weak throughout. There was slight elevation of temperature. Severe pain was complained of only during the first two days. The patient died on the sixth day in collapse. I was unfortunately called out of town immediately after the operation, and did not see the patient again. There was no note made in the history of any unusual distension of the abdomen.

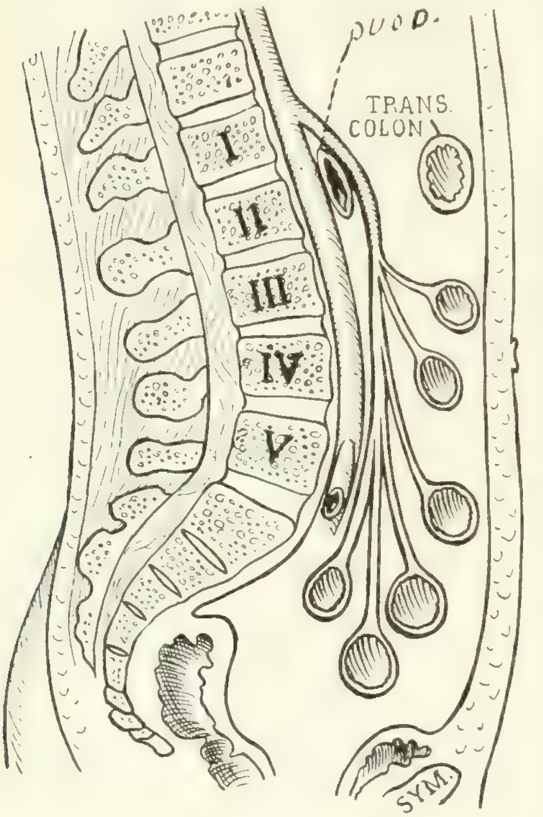
Autopsy: Anatomical diagnosis. Operation, pyloroplasty. Partial obstruction of duodenum, bronchopneumonia in left lung. Cholelithiasis, uterine myomata. There is no leakage at the point of suture and no peritonitis. The stomach is but moderately dilated, the duodenum is much dilated up to the point where it passes through the mesentery beneath the superior mesenteric vessels, beyond this point it is contracted.

Upon introducing the finger into the lumen of the duodenum, an obstruction was met at the point where the mesenteric vessels cross. The examining finger met with considerable resistance in passing the obstruction, which was relieved upon lifting the intestine out of the pelvis. No lesion was found in the wall of the duodenum, at this point.

The remaining portion of the small intestine is collapsed and lying in the pelvis. The cecum and ascending colon up to the hepatic flexure are dilated. This dilatation is apparently due to adherent omentum at the hepatic flexure. The intestines appear normal, there is hyperemia of the mucosa of the stomach with some extravasation of blood.

It will be seen at once that the clinical picture presented by this case is that of acute dilatation of the stomach less the abdominal distension. Autopsy, however, did not reveal an extreme dilatation of the stomach. Ewart also noticed in one of his cases that the stomach which had presented all the phenomena of an acute dilatation during life, was found after death to have diminished considerably in size. It has been further noted that a stomach even when found extremely dilated at autopsy will frequently, when emptied, assume almost normal proportions after the distension has been relieved by withdrawal of the gas or fluid.

It is evident that the two conditions, the one we recognize under the name of acute dilatation of the stomach and the clinical picture presented by the case just reported, are either very closely related, or are one and tne same thing. That they are very intimately associated and that the clinical picture of the one very closely simulates that of the other, cannot be gainsaid, but that they are two distinct entities, after a careful study of the histories and autopsy findings of the reported cases, I am convinced. I am equally convinced that a considerable number of the cases which have been reported in the literature as acute dilatation of the stomach, are really cases of gastro-mesenteric ileus. The prominent clinical feature in both instances is, as a rule, the dilated stomach, therefore each may properly be classed as acute gastric dilatation. That the obstruction produced by the tense mesentery and superior mesenteric vessels is one cause of acute dilatation of the stomach, will, I think, be generally admitted, but that it is the sole cause, or even the primary factor in its production, has not been established.



There are many conflicting opinions as to the causation of acute dilatation of the stomach in general. Very little, really, has been added to our knowledge of the subject since the first description by Hilton Fagge in 1872. The pathology of it is not yet thoroughly understood. Many suggestions have been made to account for the dilatation, but no single one will explain every case. As pointed out by Thompson, the two most prominent features demanding explanation are (1) the cause of the paralytic condition of the stomach walls whereby they are unable to expel their contents and (2) the mechanism which gives rise to the excessive secretion which in many instances plays such an important part in the disease.

Opinions differ as to which is the primary condition, the excessive secretion or the paralysis of the stomach walls, and whether the one is dependent upon the other, or whether they are two distinct processes. In the case of gastro-mesenteric ileus, also, the question at once arises as to the priority of the two conditions, the dilatation of the stomach or the duodenal obstruction. Does the obstruction of the duodenum, due to the superior mesenteric vessels, give rise to the gastric dilatation, or does the paralysis of the stomach walls and the subsequent hypersecretion by forcing the small intestine down into the pelvis, make traction upon the mesenteric vessels and thus produce the obstruction? Or, is the general enteroptosis so commonly found, with the displacement of the collapsed small intestine downward into the pelvis, the primary cause? These are perplexing questions which I confess I cannot answer to my own satisfaction. But whichever may be the primary condition, it is evident, as Albrecht points out, that once these conditions are present, we have established a " vicious circle."

The findings at autopsy in the reported cases have been quite constant, consisting of marked dilatation of the stomach and duodenum up to the point where the duodenum passes beneath the superior mesenteric vessels, although in a few cases, as has already been pointed out, this dilatation did not exist. The free mesenteric border, including these vessels, is found taut. The small intestine, as a rule, is collapsed and lying in the pelvis. In a few cases, the upper portion of the jejunum is not entirely empty. A dilatation of the cecum and ascending colon have been noted. On lifting the intestine out of the pelvis, gas and fluid are seen to pass the point of constriction at the superior mesenteric vessels.

The stomach walls are usually found thinned. In a few cases they have been normal. In one case of chronic pyloric stricture they were hypertrophied. Small capillary erosions of the mucous membrane have been noted, with hemorrhagic infarcts and necrotic patches. Perforation following necrosis has been observed in one case (Koerte's). Müller and Humby found atrophy of the musculature of the stomach wall, with separation of the muscle bundles so that the mucosa and serosa were in places in contact. Deep ulcers are not found. Adhesions about the pylorus have been noted in a few instances.

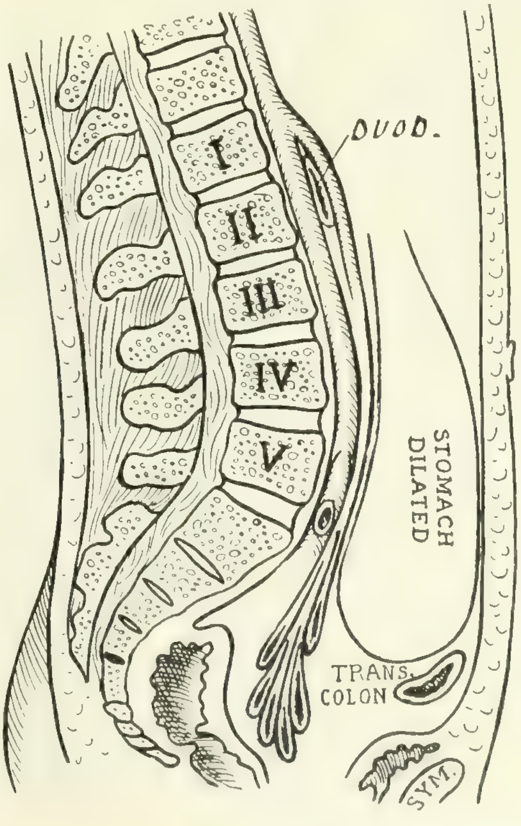
But few microscopic examinations have been recorded of the stomach walls. These show no special changes except thinning of the walls and separation of the muscle fibres with some granular degeneration, and here and there areas of hemorrhage, and round-cell infiltration. Rapid dilatation of the stomach is suggested by the separation of the muscle bundles and thinning of the gastric walls.

Various explanations have been offered by different authors of the perplexing phenomena observed in these cases, but so far none explain satisfactorily all the conditions found present. Rokitansky in the first edition of his "Handbuch der Path. Anat.," 1842, states "that at one or more points of the intestinal canal, incarceration of one loop may be caused by pressure upon it by another part of the intestine or its mesentery," but that it "takes place only from before backwards against the stiff, unyielding abdominal wall." He says this occurs most frequently where there is a long slack mesentery in connection with prolapse of the pelvic organs, or in large herniæ. In the third edition of his book, 1861, he says "in this category belongs the compression of the lower portion of the duodenum by the mesentery of the small intestine, and the superior mesenteric vessels and nerves contained therein." He speaks of it as taking place more often in advanced age. He does not discuss the conditions concerned in the production of this form of ileus, nor does he report any cases in which he has observed this condition clinically.

Albrecht in an elaborate review of the subject calls attention to the fact that the lumen of the duodenum at the point where the mesenteric root with the superior mesenteric artery crosses it, has normally a lumen which is not round, but much flattened by the pressure of the mesentery and this vessel. He thinks that in order that the small intestine, as a whole, may find room in the pelvis, it is necessary that it should contain an unusually small amount of solid or liquid. If these conditions are fulfilled, the small intestine on account of its weight, sinks into the pelvis when the body is placed upon its back, thus producing closure of the duodenum by means of the traction on the superior mesenteric artery; the lumen of the duodenum being already relatively narrow. He thinks that the occurrence of this obstruction in no way depends upon an abnormal length of the mesentery or unusually pronounced lordosis of the lumbar vertebræ, or an abnormally low position of the duodenum, although he admits that the presence of these conditions may constitute favoring factors.

The sinking of the small intestine into the pelvis, he thinks, is especially brought about by means of pronounced gastric dilatation. He speaks of the favoring influence of tight bands about the waist in this connection. Transient closure of the duodenum in this way, he assumes as occurring quite often in susceptible persons when lying upon the back for any length of time. As to the causes which render permanent this condition of compression, he thinks there has, as yet, been no satisfactory explanation. *A priori* we have two possibilities: (1) either the *vis a tergo* is too weak to overcome the obstruction in which event there would be present a defect in the motility above the compressing point, or (2) there are abnormal mechanical relations present, which increase the pull downwards and backwards of the small intestine and keep it permanent, so that the mechanism of the normal motor power is insufficient to force open the closure. The first explanation would presuppose a neuroparesis of the stomach or duodenum, or both. Such a condition has not up to the present time been demonstrated, although motor weakness of various grades is not infrequently met with. Explanation of these cases by means of motor insufficiency alone he considers unsatisfactory, after quoting the observations of Hanau, Kelynack, and others.

That motor insufficiency of the stomach may play indirectly an important role, he thinks likely. He considers, at some length, the forces which go to make constant the pull upon the mesenteric vessels. Adhesions, of course, suggest themselves as a means of holding the small intestine fixed in the pelvis, but these have not been generally observed. A great distension, which would increase their weight, has also not been observed. On the contrary, they are, with few exceptions, empty and contracted. Hanau first suggested the enormously distended stomach as the force concerned in rendering constant the position of the collapsed small intestines in the pelvis. This occupies the entire upper abdomen, preventing their escape from the pelvis. He reports one case in which the stomach contained four liters of fluid. Other larger amounts have been reported by other observers. He calls attention



to the fact that enormous pressure must be exerted on the small intestine in the pelvis, and a corresponding pull upon the mesentery, by this superimposed weight.

Albrecht also carried out some experimental observations as to the effect of attaching small weights to the mesenteric vessels, and the amount of obstruction produced by these in the duodenum. He found that with a weight of 2 kg., a considerable water pressure would be necessary in order to force fluid through the constriction into the jejunum. He considers the mechanical effect of the distended stomach as a direct cause of the ileus symptoms, by holding the coils of small intestine in the pelvis once they have gotten there, and as an indirect cause in displacing them there primarily. He recognizes the existence of a chronic dilatation of the stomach which he believes of considerable etiological importance in the development of the acute form. He differentiates two varieties, those in which the wall of the stomach is found much thinned and those in which it is not. In the latter class, he places the chronic dilatations. He suggests also the possibility, in the case of chronic dilatation, that this may lead to a narrowing of the boundary point between duodenum and jejunum, which, under favoring circumstances, may become complete, and draws an analogy between this condition and over distension of the bladder.

I have quoted Albrecht's views at length because he was the first to give any adequate explanation of the conditions observed, and because they embody practically all that is known to-day as to the causation of the condition. It would lead us too far afield to discuss all the hypotheses that have been suggested by different writers, but reference to a few of the more important may not be out of place.

Glenard, whose classical work on enteroptosis has thrown so much light upon this and kindred conditions, believes that the dilatation of the stomach brings about an atony and sinking of the duodenum, and by means of the pull downwards, a narrowing at the duodeno-jejunal boundary. The emptying of the stomach is thus made more difficult. This increases its atony and may lead to dilatation. Following the sinking of the duodenum, a pressure upon the common duct is brought about. He also describes a physiological closure of the duodenum by the superior mesenteric vessels and mesentery, the function of which is to retain the chyme for a longer period in the duodenum.

Kussmaul and A. Fraenkel believe that the greatly dilated stomach produces kinking of the pylorus, but that this is not the case in the great majority of instances is shown by the fact that bile is present in the vomitus.

Kundrat and Schnitzler think that in order that such a condition may take place, there must be a change in the mesentery and also in the vertebræ. This change in the mesentery consists in a closure of the fan-shaped form, to that of a half-opened fan, and this can only take place when the intestines are contracted and lie in the pelvis. By this means the direction of the pull on the mesenteric root is concentrated, and predisposes to incarceration. This condition, they think, is impossible in cases of stiff abdominal walls, and can take place only in those cases where the walls are very lax. They also think there is a relatively low position of the duodenum, bringing it nearer the prominence of the lumbar vertebræ, and thus making the compression of easier occurrence.

If the intestine contains no gas, there is a stronger pull exerted. Even with all these factors, they consider it necessary to have a slight twist of the mesentery, that is, not a true volvulus, but a position that is slightly diagonal. They have found from observation on the cadaver that compression of the duodenum occurs more easily when the mesentery is displaced slightly toward the right.

Müller thinks that this form of compression can come to pass from a horizontal position on the back, and that this is the most important contributing cause. He thinks it is favored by the fact that in post-operative cases the purgation before operation leaves the intestine entirely empty, and that it is also favored by the weakening influence of the narcosis. In this condition, the empty small intestine needs only to sink into the pelvis, provided its mesentery is of sufficient length.

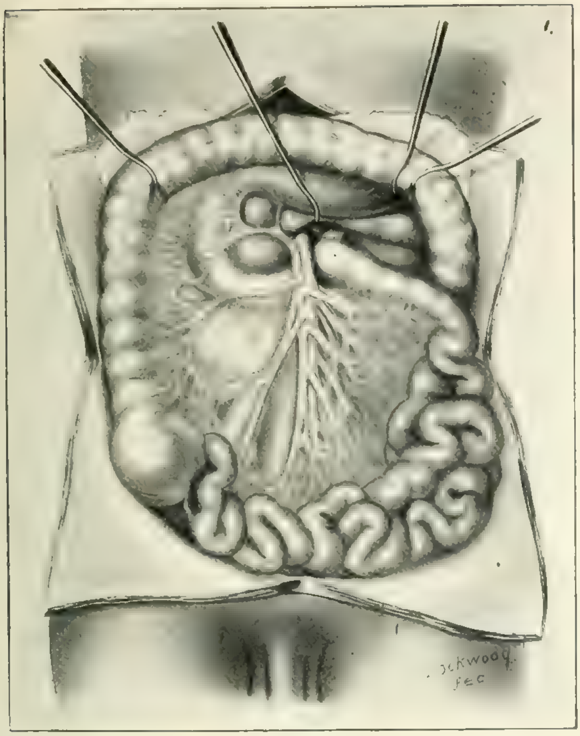
Müller is of the opinion also that compression of the duodenum is always the primary cause, and that dilatation of the stomach is of secondary origin. He does not believe in the theory of a latent gastrectasia.

Stieda thinks that the primary cause is an acutely increasing atony of the stomach and duodenum, and that the obstruction by the mesentery is secondary. The dilatation of the cecum and ascending colon sometimes observed, he thinks, is due to the fact that the dilated stomach produces a kink at the hepatic flexure by pushing down the transverse colon.

Kelling does not consider incarceration of the small intestine in the pelvis and a special length of the mesentery sufficient cause for the occurrence of this obstruction. He thinks there must be a primary over-filling of the stomach which compresses the small intestine into the pelvis. He gives the name of " combination ileus " to this condition. He thinks, to establish the diagnosis of arterio mesenteric closure, we must be able to demonstrate some factor which will place the small intestine in the pelvis, and prove that this took place at the same time as the occurrence of the symptoms of duodenal closure.

He reports the results of some experiments upon the cadaver which would tend to show that dilatation of the stomach took place only after the formation of a kink in the duodenum, together with a valve formation at the cardia.

Thompson thinks the primary cause the paralysis of the stomach walls, and discusses, at some length, the conditions giving rise to this. Later on distension by gas or excessive secretion takes place. That the latter is not the primary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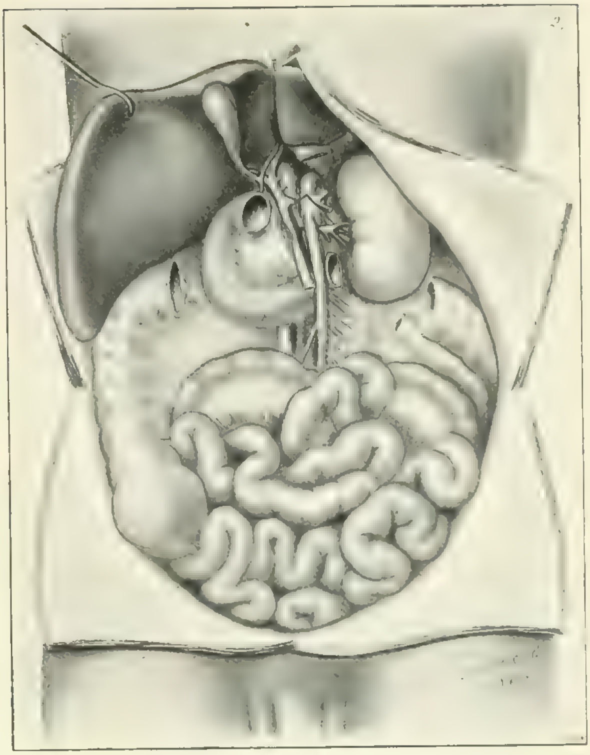
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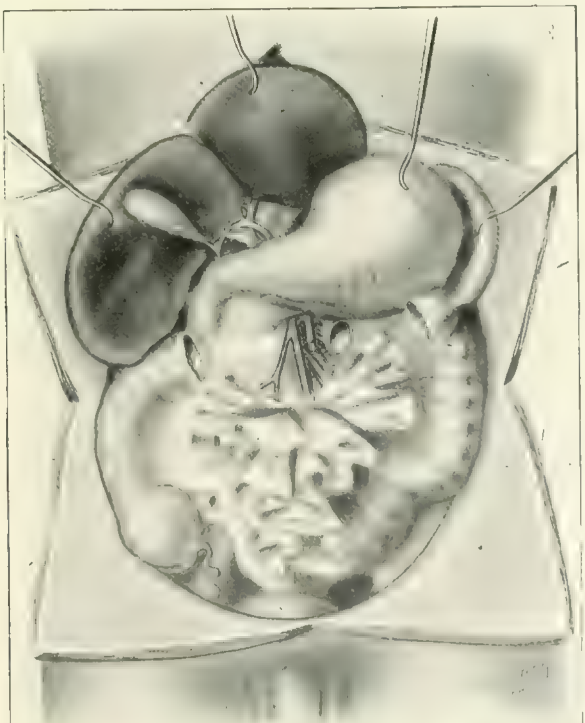
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cause is evidenced by the fact that it is not present in every case. Pepper and Stengel hold the view that there is some obstruction of the pylorus either spasmodic or permanent; but the presence of bile in the vomitus would exclude this as a possibility. Both Thompson and Wiesinger call attention to a distinct rotation at the pylorus, and Bennett has observed the same condition at the cardiac end. Thompson urges the absence of visible peristalsis as an argument against the theory of obstruction either at the pylorus or duodenum, in reply to which Mayo Robson points out that " peristalsis in any part of the intestinal canal is never seen in acute obstruction unless it supervenes upon a chronic impediment to the outflow of fluids." A rather too sweeping statement, I fancy.

Box and Wallace advocate the idea that the " Tense distension is due to actual pressure of the stomach upon the part of the duodenum which crosses the third, and ascends by the side of the second lumbar vertebra to end in the jejunum." They think that in order to explain the phenomena met with, there must be (1) a paralytic condition of the viscus which leads to distension, and then at a certain stage (2) the distended stomach actually produces obstruction by pressure of the duodenum against the front and left side of the spinal column.

Byron Robinson, of Chicago, who seems to be the only one in this country who has written upon this subject, insists upon the very important part played by enteroptosis. He believes that this factor, together with the relative fixation of the duodenum, which he explains on anatomical grounds, are the most important contributory causes in the development of this condition. He thinks the gastric dilatation is caused primarily by gas, and later by fluids.

It will be readily seen from this summary of the opinions of the various observers, that there is no unanimity of opinion as to the mode of production of the condition under discussion.

Etiology: Indiscretions in diet, enteroptosis, debility, whether caused by wasting diseases, acute infections, surgical operations, or narcosis, seem to be the most constant and potent etiological factors. To these might be added certain of the grave toxemias and severe injuries, examples of which have recently come to my attention. An example of the former occurred in a young woman with pernicious vomiting of pregnancy who, through false statements, had been operated upon for gastric ulcer. Typical symptoms developed shortly after the operation and continued unabated until death. At autopsy an enormous V-shaped dilatation of the stomach was found, with moderate distension of the intestine, and advanced fatty degeneration of the liver.

The second case, related to me by Dr. W. S. Watson, was a feeble old lady, aged sixty-five years, the mother of twelve children, with very relaxed abdominal walls, suffering from diabetes, who fell and sustained a fracture of two ribs. She progressed favorably until the fourth day, when, without apparent cause, she began to vomit frequently, and in considerable quantity. The abdomen began to swell, and a large-sized tumor rapidly developed. The pulse became quick and feeble, temperature normal. The vomitus was very dark like coffee, the odor was disagreeable, but not feculent. Outlines of the greatly distended stomach could be seen lying diagonally across the abdomen, from left to right, and extending almost to the symphysis, it is tympanitic and very tense, no visible peristalsis. The abdomen was opened by another surgeon, and the greatly distended stomach was punctured and sutured to the parietal peritoneum. The duodenum was not seen, transverse colon and small intestine reported as normal. No recurrence of vomiting since the operation. Moderate drainage from gastric fistula. After a day or two the patient became drowsy, and later lapsed into unconsciousness, and died on the seventh day from apparently a diabetic coma and general debility. Whether the effect of the fall and the broken ribs, or the toxemia from the diabetes exercised the greater influence in this case is a question.

Of the surgical causes, narcosis comes first, chloroform being the anesthetic most at fault. In some experiments on dogs, Kelling showed that without anesthesia, he could dilate the stomach only up to a pressure of 25 cc. of water, and at this point it was released. Under narcosis, however, the stomach could be blown up to a pressure of 70 cc. of water.

Next in importance are those cases following operations upon the bile passages. Kelling considers that the obstruction in the duodenum in these cases is not due to any pulling on the duct, but either from a local peritonitis or by pressure of dry gauze packing which expands as it becomes moistened.

Kelling states that there is a certain amount of chronic dilatation of the stomach in cases which have had a number of gallstone attacks. The application of plaster jackets for kyphosis and scoliosis has been noted in a few cases. In addition to operations upon the stomach and bile passages, it has developed after surgical operations upon the trunk and extremities.

Contrary to Rokitansky's original statement, the condition seems to be more common in middle life than in old age. Sex seems to have no etiological bearing.

Symptoms: The symptoms of this condition are vomiting at frequent intervals of large quantities of fluid, which may be greenish or yellowish at first, but which later becomes very dark brown or black. The quantity at times may be enormous. As much as a liter at one time has been observed. It is usually ejected with little or no effort. The vomitus is at first odorless, later becoming more offensive, never feculent. Müller reports a case in which following drainage of the bile ducts, the same fluid escaped from the biliary fistula that was vomited from the stomach, pointing to an obstruction below the opening of the common duct. Meyer and Hochhaus report similar observations.

Abdominal pain is frequently observed in the early stages, but it is usually not pronounced later. Distension, beginning in the epigastrium and some times extending much lower, is usually present. Tenderness is not marked, constipation is usually present, but frequent watery stools have been occasionally observed. The great amount of fluid vomited gives rise to intense thirst, which is one of the prominent features. The pulse is usually rapid, temperature normal or subnormal. Collapse is a late development. The respirations are shallow and rapid. The amount of urine is much reduced, amounting, at times, to almost complete anuria.

Diagnosis: The diagnosis would appear to be easy, past experience has proved otherwise. The appearance in debilitated persons of frequent and copious vomiting of dark colored fluid, either associated with disease or following surgical operation, or injury, later the development of abdominal tumor, characteristic pain, elevation of pulse and normal or subnormal temperature, present a picture which, when seen once, one will not fail to recognize again. In cases where the clinical picture is not so pronounced, difficulty may be experienced in arriving at a correct diagnosis. Curiously enough, the large majority of cases have not been recognized, but have been mistaken for intestinal obstruction or peritonitis, which are the chief conditions one has to differentiate. Uremia, pancreatic cyst, encysted abscess of the peritoneum, chloroform toxemia, ovarian cyst, have all been mistaken for acute dilatation. Peritonitis is the condition for which the trouble is most often mistaken. In the postoperative cases where the element of infection is present, special difficulty will be experienced. The patient presents a picture not unlike that of a general peritonitis, an anxious, pinched expression of countenance, abdominal distension, which is apt, however, to be more uniform in peritonitis: the abdominal pain and tenderness which is also usually more marked in peritonitis; a rapid pulse and great thirst, all are frequently observed in both conditions. The temperature, notoriously unreliable in peritoneal inflammation, may or may not be elevated. In doubtful cases one must seek help from special aids in diagnosis. The stomach tube will be of service, frequently distension is markedly relieved by its introduction. The presence of succussion is strongly suggestive. A leucocyte count, though frequently unreliable, is of some assistance.

Recent investigations upon the opsonic content of the blood made by Dr. Charles E. Simon, in a series of abdominal operations occurring in my service at the Union Protestant Infirmary, show very high values in certain cases of peritoneal inflammation. In a small number of cases of intestinal obstruction, on the other hand, values were obtained which were essentially normal. This suggested a series of experiments to ascertain to what extent the determination of the opsonic content of the blood might be of service in distinguishing between infective and obstructive cases. In the latter, there was found to be very little deviation from the normal, while the infective cases showed comparatively high values. Our experiments as yet are too few to warrant any definite conclusions, but the results obtained are suggestive and worthy of further study.

Careful examination of the urine will usually establish the diagnosis of uremia. In many instances, the diagnosis can only be established by an exploratory incision or at autopsy.

Treatment: In the majority of cases, treatment has been of no avail. If the diagnosis is established early, the frequent use of the stomach tube will be found of great service. The position of the patient in bed is of great importance. Dorsal decubitus should be avoided. The patient should lie on the right side or on the abdomen, with the hips elevated. In refractory cases, the knee-chest position should be tried. Large enemata have been recommended with the idea of distending the large intestine.

My associate, Dr. W. A. Fisher, has suggested the dilatation of the sphincter, and in the knee-chest position in order to allow inflation of the rectum with air and thus push up the small intestine from the pelvis, in the effort to relieve the tension upon the superior mesenteric vessels, a suggestion, possibly of some value.

Strychnine and atropine in large doses hypodermically have been recommended. Abdominal pads and binders of one sort or another have also been applied. Where these measures have been tried and failed, recourse must be made to further surgical measures. Manual replacement of misplaced viscera should be carried out. As a last resort, gastro-enterostomy has been advised. It was first successfully performed by Robinson, of Chicago. Gastro-mesenteric ileus developed, however, in Zade's case subsequent to a gastro-enterostomy for carcinomatous stricture of the pylorus.

It would appear, therefore, that too much reliance should not be placed in this procedure. Robinson has proposed the section of the duodenum and its reunion again by suture in front of the mesenteric vessels, a thoroughly unpractical procedure.

Prognosis: The vast majority of cases have resulted fatally in spite of all measures instituted for their relief. Recently, however, a few cases of recovery have been reported. Schnitzler and others have been able to save cases treated by postural methods and Mayo Robson in his book reports three recoveries. If the diagnosis is made early and frequent lavage through the stomach tube instituted at once, we may hope that an increasing number of recoveries will be secured. Unfortunately, one cannot expect much from secondary operations on account of the condition of the patient and the necessity for a second anesthetic. Kerr reports one case successfully operated upon under Schleich's solution.

CONCLUSIONS.

(1) Acute dilatation of the stomach and gastromesenteric ileus cannot be differentiated clinically.

(2) Obstruction to the lumen of the duodenum by the root of the mesentery and the contained superior mesenteric vessels, has been demon-

strated, and is probably of more frequent occurrence than has been supposed.

(3) Whether this is primary or secondary to the gastric dilatation, or whether this relationship is a constant one, has not been determined.

(4) The diagnosis would appear to be more easy than past failures seem to indicate.

(5) The use of the stomach tube and avoidance of dorsal decubitus offer better results probably than secondary operation, owing to the unsatisfactory conditions existing.

(6) With earlier diagnosis and the early institution of the measures just suggested, an improvement in the very high rate of mortality can be confidently expected.

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SPONTANEOUS RUPTURE OF THE HEART WITH REPORT OF A CASE.

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While death from spontaneous heart rupture is not an extremely common occurrence, yet it is by no means as rare an accident as was formerly supposed. The increasing number of autopsies in cases of sudden death proves that the condition referred to is substantiated more frequently each succeeding year. Deverjie (quoted by Councilman), in 1840, reckoned that 2½% of all cases of sudden death were caused by this accident. Aran (also quoted by Councilman) in analyzing 202 cases of sudden death attended by pathological changes in the circulatory system, found 88 to be due to spontaneous heart rupture. Since the time of these communications, there has been a steady increase in the number of cases reported. Councilman and Somers both emphasize the fact that spontaneous cardiac rupture is not extremely rare. Statistics collected from the records of institutions are very contradictory as to this point — Meyer found only 7 cases among the records of between 12,000 and 13,000 autopsies performed at the Munich Pathological Institute, while Hamilton found an equal number of cases among the comparatively small number of autopsies recorded at the Independence State Hospital for the Insane (Iowa). It is apparently true, however, that this accident is much more often met with among the insane than in any other class of patients.

Quain's assertion that spontaneous rupture never occurs in a normal heart, has been confirmed by the autopsies in which a careful microscopical examination has been made. We have, then, in this myomalacia cordis, the predisposing etiological factor. Fatty degeneration of the myocardium, atheroma and thrombosis of the coronary arteries, myocarditis, cardio-valvular disease, ulcerativeendocarditis, syphilitic changes in the myocardium, cysts and neoplasms of the heart wall, are all capable of acting as direct causes. Segmentation of the heart muscle has been found in a few cases, but it is questionable whether this condition is pathological or an artifact produced by the microtome.

There is generally some mental or motor excitement which acts as a determining cause in the production of the rupture. Osler, Quain, Bruce and others state that mental or motor excitement usually precedes the accident. W. J. Greig has described a case where the rupture occurred while a stomach tube was being passed. Moore reports a case seen by T. A. Dixon, where a rupture was caused by strangulation in a boy of eight years. Morgagni tells of a case of heart rupture which occurred during coitus, and the accident occurs strikingly often in stallions during the sexual act. It is a question whether the cases following non-penetrating wounds of the thorax should be considered spontaneous or traumatic; rupture of the papillary muscles, aortic and mitral valves have occurred after slight contusions in the cardiac region, falls, etc. Experimental increase of intra-ventricular pressure does not bring about rupture in the normal heart, but increased blood pressure serves as an accelerating cause when the myocardium is diseased.

On the other hand, many cases occur when the patient is either asleep or in repose. Foote, McIntosh, Mickle, Williams, Hamilton and others have described cases where no excitement or exertion preceded the rupture. Grief and intense mental disturbance have been enumerated as causes. It would be interesting to trace the genesis of the traditional term "broken heart," although its present meaning does not imply any pathological condition of that organ. The death of Philipp V of Spain, following so soon after the defeat of the combined French and Spanish forces by the Imperialists at Piacenza, has been ascribed to grief, and there is no reason why the mental strain could not have hastened the rupture which caused his death.

By far the greater number of cases occur in persons over sixty years of age. In Quain's analysis of 100 cases, 63 were over sixty years old and, out of this number, 33 were between sixty and seventy years, while 24 ranged between seventy and eighty years. In those cases of Meyer, where the age was recorded, over 60% were sixty years or older, only 3 cases being under forty years of age. Very rarely does this accident affect persons in early life. The rupture cases occurring in people not far advanced in life include Elleaume's case of a woman aged twenty-two, Groom's case of a boy of sixteen years, Moore's report of Dixon's case of a boy aged eight, and Green's description of a case occurring in a child of only nine and one-half months.

Although nearly all of the recorded cases have occurred in persons occupying the lower positions of life, who had been obliged to perform hard labor over a period of years, three notable cases have occurred in people of prominence. George II of England, died from spontaneous heart rupture while at stool; Philipp V of Spain, as already stated, was also a victim of this disease. In our own profession, the great Morgagni died of the very trouble he had investigated with so much care — spontaneous heart rupture. The occurrence of this condition in patients suffering from mental disease is noticeably frequent; a goodly proportion of the American and English cases have occurred in insane persons, and the necropsical records of hospitals for the insane show a remarkably high percentage of deaths from this cause. Most cases have occurred in patients afflicted with the involution and the alcoholic psychoses.

Spontaneous heart rupture occurs much more frequently in men than in women. In 18 cases of Elleaume, only 2 occurred in females. Barth alone has found a preponderance of cases among women and his statistics are unreliable as to this particular point, inasmuch as they were obtained from the records of institutions where women form the vast majority of the cases treated.

The rupture is most commonly located in the anterior surface of the left ventricle which locality is extremely apt to afford a diseased myocardium. Also, the vigorous systole of the ventricle probably acts as a factor in determining the frequency of rupture at this point. Rupture always occurs during systole (*Rokitansky* and *Wunderlich*). The collected cases of Meyer show the left ventricle to be the site of the rupture in 25 instances, the right ventricle was affected in 7 and the right auricle in 4 cases. Elleaume's statistics show a similar distribution of the ruptured sites. In 55 cases reported by this author, the wall of the left ventricle was lacerated 43 times, that of the right ventricle 7 times; the wall of the right auricle was affected 3 times and that of the left auricle only twice. In reviewing 36 cases found in English and American literature, I found the following distribution of the position of the rupture; left ventricle, 29 cases; right ventricle and right auricle, each, 3 cases; right auricle, 1 case. Rarely death is produced by rupture of the intra-ventricular septum and this condition occurred in two of Meyer's cases.

The size and appearance of the rupture vary greatly in each case. There may be a minute laceration, 5 or 6 cm. long, or the tear may extend from apex to base. Sometimes perforations barely admitting a probe point are seen. When there are a number of lacerations, they usually consist of one large tear and several small perforations. Usually the rupture is complete, but it may be partial and, in the latter case, the papillary muscles are generally torn. The rupture generally presents a jagged, lacerated, irregular outline and varies from ¼ to 1½ in. in length. In many cases the blood burrows through a considerable amount of cardiac tissue, causing a tortuous sinus-like wound, the internal and external openings of which are at greatly different levels. It is usual to find an accompanying atheroma of the coronary arteries or an infarct plugging the trunk supplying the affected area. It is rare to find the valves normal; they are either shrunken or calcified and the auriculo-ventricular rings are generally stretched. Atheroma of the aorta and arterial changes in the kidney vessels accompany the chronic arteritis which is so marked in the coronary vessels. Both Barth and Meyer assert that a clot of blood never plugs the external opening of the rupture, although Hamilton states that this is not an infrequent occurrence. The pericardial sac usually contains 200 to 400 gm. of blood. In a few cases, extensive adhesions existed between the pericardial sac and the visceral layer. In Shelby's case and in the writer's, the pericardial sac was also lacerated.

Microscopically the heart muscle most commonly shows an advanced degree of fatty degeneration; this condition was present in 77% of Quain's cases. When the myomalacia cordis has been produced by an infarct, the typical changes of this condition are seen. It is usual to find an indistinct striation of the muscle fibers, the differentiation of the transverse striations being especially poor. In the writer's case the muscle fibers were greatly swollen and contained enormous nuclei, showing a compensatory hypertrophic process which had failed to check the vicious circle. Besides these changes, evidences of either myocarditis, ulcerative endocarditis, fragmentation of the heart muscle or syphilitic changes are presented in nearly every case. Amyot, in the case seen by him, obtained a pure culture of the pneumococcus from a clot which extended from the ventricle into the internal opening of the laceration.

The fatal termination usually comes very suddenly, and may or may not be preceded by prodromata. In Quain's 100 cases, precursory symptoms were lacking in 71 of them. When preliminary symptoms occur they usually consist of precordial anxiety, pain in the left half of the thorax, oftentimes shooting into the left arm, and of a feeling of faintness. Death may occur instantly without any previous cardiac symptoms though, in most cases, there has been a history of symptoms extending over a variable length of time and connected with the circulatory system. Edema of the extremities, irregular heart action, cyanosis, albuminuria, dyspnea, coughing spells, I-dehete pseudo-angina pectoris attacks, gastric irritability and pain in the cardiac region have all been enumerated by various writers. In the case reported in this article, nausea, vomiting, dyspnea, cough and cyanosis, accompanied by the physical signs of a non-compensating heart make up the symptom complex. The patient did not complain of pain in the region of the heart.

When death does not occur instantly and the patient lives for hours or even days, he is often able to detail his symptoms. They usually consist of a " feeling of tearing within the breast " at the time of rupture, as one of Meyer's cases described it. The rupture is accompanied by pain which generally becomes less severe soon after the accident occurs. In a short time cold perspiration covers the patient's body, he becomes cyanosed; nausea, vomiting and diarrhea may supervene, and physical examination shows an almost imperceptible heart action. The pain usually reappears and the symptoms increase in intensity just prior to death. In these cases it is probable that a small laceration extending part way through the myocardium occurs at first, and the tear is enlarged at a later period, causing a hemorrhage sufficiently great to bring about death.

Physical examination made from time to time in those cases which survive for a few hours, may or may not show an increasing area of cardiac dullness due to hemopericardium.

In the case that came under the writer's observation, hoarseness similar to that produced by aneurysm of the aorta, was present for several months, and the laryngoscopic examination revealed a paralysis of the left vocal cord. Paralysis of the left recurrent laryngeal nerve occurs in simple cardiac hypertrophy, and it is due to the nerve being pressed against the aortic arch and pulmonary artery by the enlarged heart, as was the case in this instance. Sheldon has reported a case of mitral stenosis where the paralysis of the left recurrent laryngeal nerve was due to pressure by an enlarged left auricle, and in which the attacks were of intermittent character.

As to the cause of death, this is entirely theoretical. The accepted explanation is that death occurs through pressure on the heart due to the filling of the pericardial sac with blood. Stokes contends that this is untrue, inasmuch as cardiac action is not arrested by the pressure of the exudate in serous pericarditis; but, in the latter condition there is a gradual increase of pressure and the exudate seldom distends the pericardial sac as forcibly as after a spontaneous rupture. Death is surely not due to the loss of blood and consequent cerebral anemia in all cases, for rarely is a considerable amount of blood diverted from the circulation. Lastly, death may possibly be due to shock.

It is improbable that the diagnosis has seldom, if ever, been made with any satisfaction prior to the necropsy. In those cases where death occurs almost instantly, the symptoms and physical signs are practically the same as those of acute dilatation. If the patient lingers for a varying time, a tentative diagnosis might be made on the intense precordial pain, sudden destruction of compensation in a well functioning heart and an increasing area of cardiac dullness.

Death always follows a complete laceration of the heart wall. Generally the patient succumbs immediately, but the fatal termination may be delayed for several days. Eichorst (quoted by Hamilton) tells of a case where the patient lived seventeen days; one of Barth's cases lived ten days; case 6 of Hamilton's series lived five days; S. C. Noble has described a case in which death occurred after five and one-half days; and Osler saw a case where the man lived thirteen hours and was able to walk up a steep hill after the onset of the trouble. He also speaks of a case that lived eleven days. Willigk (quoted by Böttger) described a heart in which a tear in one of the ventricles led into a small sac formed by adherent pericardium. In this case it was evident, from the appearance of the lesion, that the primary rupture had occurred at a considerable period previous to death which was finally caused by rupture into the pleural cavity.

Treatment is rarely necessary and when required is of no service. If a patient does not die immediately, morphia should be given freely in case the precordial pain is intense. Nitroglycerin is theoretically indicated; digitalis has been recommended, but should not be given as it will do no good and may be injurious by increasing the force of systole.

Report of Case. B. J. G., male; age thirty-six; single; born in America.

Since the age of sixteen the patient had suffered from several attacks of manic-depressive insanity and had been a patient in this hospital during the greater part of that time. On admission to Butler Hospital, in 1886, the patient had an enlarged heart and cardiovalvular disease. There was a progressive increase in the severity of the cardiac condition until the time of death. He suffered from repeated attacks of dyspnea, cyanosis, edema of the extremities, palpitation and prostration. The urine constantly contained a large amount of albumen and was loaded with casts. Finally, on Jan. 17, 1906, the cardiac condition caused such urgent symptoms that the patient was put to bed. For several months previous to this time he had suffered from a cough that was considered to be due to aneurysmal pressure.

Physical examination of the cardiac region revealed an enormously hypertrophied heart, the apex beat being felt 1½ in. to the left of the midclavicular line. Inspection showed a pulsation in the second aortic interspace and a distinct thrill was present over this area. Percussion elicited an area of dullness extending outwards over 2 in. to the right of the sternum and upwards nearly to the lower border of the right clavicle. Over this area of dullness a double "to and fro" murmur could be heard; the murmur was transmitted upward into the vessels of the neck. Examination of the larynx revealed a paralysis of the left vocal cord.

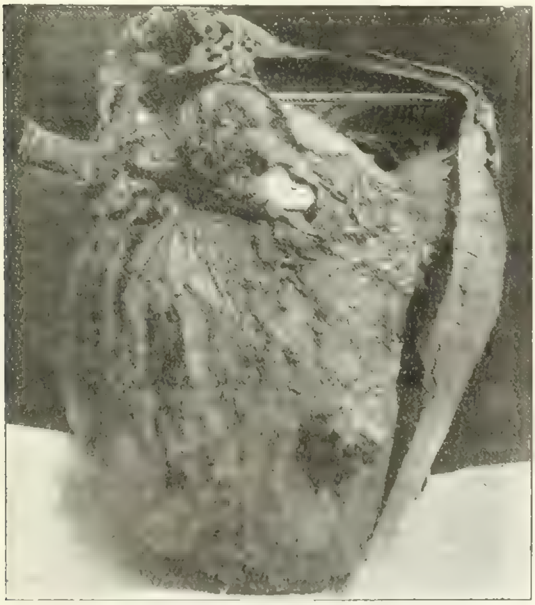
The patient at this time suffered from cyanosis, orthopnea, edema of the extremities and scrotum, hoarseness, nausea, and vomiting. The gastric irritability was very rebellious to treatment and increased to such an extent that the patient was unable to retain nourishment in any form. The pulse was rapid, irregular in force and rhythm and of low tension. About 11 A.M., on Jan. 30, the patient refused to use the bedpan and started to get out of bed, whereupon he suddenly became intensely cyanosed and fell backwards upon the bed. The writer saw the patient within two minutes after the above occurrence and, upon examination, found that life was extinct. During life, a diagnosis of aneurysm of the ascending and the beginning portion of the transverse arch was made, and death was thought to have been occasioned by rupture of an aortic aneurysm.

The necropsy was performed at 7 P.M. of the same day and showed the following:

The body was well nourished. The lower extremities, scrotum and penis were markedly edematous. Rigor mortis was well developed, and an observation made previous to the autopsy showed that it appeared very much sooner than is usual.

Pleural cavities: The right lung was adherent to the chest wall at the upper and outer portion of the lower lobe. The left pleural cavity showed no adhesions, but was filled with liquid blood; the lung, which was half the size of the normal organ, being crowded upwards and to the right. Cross section of either lung revealed no pathological condition.

Heart and pericardium: The heart filled the entire pericardial sac and the pericardium was adherent over the greater surface of both auricles and ventricles, the pericardial cavity being practically obliterated. The heart was greatly hypertrophied and it, together with the aortic arch, pericardium, trachea and great blood vessels at the base, weighed 2 lb. 6½ oz. The walls of both ventricles were greatly hypertrophied, the wall of the left ventricle being 1½ in. in thickness, while that of the right was ¾ of an inch thick. The left auriculoventricular valves were calcarious and shrunken but presented no vegetations. A similar condition was found in the valves guarding the tricuspid opening. Both auriculoventricular rings were markedly stretched. The right ventricle and left auricle were enlarged and dilated. The right auricle was greatly hypertrophied and encroached upon the territory normally occupied by the left auricle, so that it occupied the greater part of the posterior surface of the base. The wall was thickened in some places, but at one point it was of paper thickness and presented an irregular tear, 1¼ in. in length, which extended through the myocardium, pericardium, and the attenuated reflection of the posterior mediastinum. Rupture had occurred into the left pleural cavity, a result that would have been impossible had not the right auricle occupied the greater part of the posterior surface of the base. There was no clot in the external opening of the wound. The semilunar valves guarding the aortic orifice were markedly thickened, shrunken, and adherent; they presented calcified vegetations. The ascending portion of the arch was slightly dilated. The pulmonary valves were normal. The *cor bovinum* had resulted from an aortic stenosis and regurgitation.



Rupture in posterior wall of right auricle

The coronary arteries were pervious to a probe although both were atheromatous and the lumen of the left was markedly diminished in calibre at places.

Microscopical examination of specimens of the cardiac muscle was made by Dr. F. T. Fulton, pathologist of the Rhode Island Hospital, and the following is an epitome of his report:

Section of muscle from right auricle shows no evidence of fragmentation. The nuclei of the muscle fibers are distinctly swollen, being occasionally more than twice the normal size, rather pale and finely granular, the chromatin being uniformly distributed throughout the nucleus. Section from the left ventricle shows uniform enlargement of the nuclei. The muscle fibers are wavy in outline and the transverse striations are often very indistinct although in some places they are fairly well marked. Section from the left coronary artery shows the intima to be irregularly thickened, being in many places much thicker than the media of the artery. The tissues was not examined for fatty degeneration because it was not received until after it was hardened in formalin.

Remarks. — The above case is unique in several ways: Rupture into the pleural cavity rarely occurs and was probably determined by the obliteration of the pericardial cavity through the formation of adhesions. The patient was only thirty-six years old, and it is unusual for spontaneous rupture to occur in one of his years. The case presented the physical signs and symptoms of aortic aneurysm, and was accompanied by symptoms of pressure upon the left recurrent laryngeal nerve. The slight enlargement of the ascending portion of the aortic arch present could not have possibly caused this clinical picture. Lastly, the chronic arteritis was advanced in the coronary arteries while the systemic vessels were quite normal.

I wish to thank Dr. F. T. Fulton for valuable aid received in the preparation of this article, by his kindness in making and reporting upon the microscopical examination.

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SPONTANEOUS RUPTURE OF THE HEART IN A CASE OF SENILE DEMENTIA.

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THE following case is reported owing to the infrequency with which such cases come to autopsy.

Clinical summary: T. E., male; eighty-three years of age; admitted to Taunton Insane Hospital, Jan. 11,

1906. No reliable previous history obtainable. Said to have been insane for one year; became talkative, abusive, quarrelsome and showed increasing motor and psychomotor activity. Spoke of spirits following him, threatening him injury. Recent memory defective.

A well-developed old man looking not more than seventy-five years of age. Together with the usual senile traits he had a slight deviation of the tongue to the right, but no other focalizing symptoms. No eye symptoms; reacting pupils; nothing of importance in the deep reflexes. Slight dribbling of urine, the urinary examination showing only a trace of albumen, a few pus corpuscles and acid reaction. Heart's dullness slightly increased to the left; heart's action irregular, no distinct murmurs. Peripheral arteries hardened. Radial pulse weak and thready.

During his hospital residence, he was much excited, constantly producing, with loud voice, an incoherent stream of talk, about murders, shooting, etc. Evident auditory hallucinations. He was very irritable; disorientated; recent and remote memory defective. Slept very little. When awake was in almost continuous motor activity. He never complained of cardiac distress. His condition varied little.

The night of Jan. 28 he was seen by the night nurse at twelve o'clock and was in no way different from usual. Twenty minutes later he was found dead in an easy position in bed, not having been seen in the meantime.

The autopsy was performed thirteen hours after death.

Anatomical Diagnosis: Hemorrhage into pericardial sac from rupture of the heart muscle near tip of left ventricle; patch of anemic necrosis at apex of left ventricle; sclerosis of coronary arteries with a thrombus in branch near necrotic area. No significant sclerosis in aorta, but sclerosis in basal cerebral vessels and peripheral arteries; chronic fibroid pleuritis; biliary calculi; calculus in urinary bladder, with slight subacute cystitis; pachymengitis chronica; leptomeningitis chronica; small subdural clot, partially organized in right pariental region; hydrocephalus ex vacuo; atrophy of frontal lobes; *état criblé* in basal gray nuclei.

I shall describe in detail only the findings in connection with the circulatory system which have a direct bearing upon the subject in hand.

The following is from the autopsy protocol: " Upon opening the pericardium, which is tense and bulging, there is a gush of dark fluid blood, 500 cc. There are a few small dark clots. On examination an irregular tear is discovered on the anterior aspect, 8 mm. in length, parallel with the long axis of the heart. The lower edge is 15 mm. from the apex and it appeared superficially to be connected with the right ventricle being situated immediately over the right venticular wall. Further examination shows that the external opening is connected by a channel with an area of degeneration at the apex of the left ventricle. This degenerated area is irregular in outline, somewhat wedge shaped, the greater part of the tissue darkish gray and of a necrotic parboiled appearance, but there are areas of healthy looking muscle intervening so that the necrotic patch is not sharply outlined from the normal muscle. It is softer than the surrounding muscle. The periphery of the patch has a congested appearance. The tissues about the channel are soft and infiltrated with blood. The channel from a position a little beyond the external part of the area of degeneration to the outer opening is covered only by the epicardium. Within this channel are a few dark clots and small grayish necrotic masses.

" The coronary arteries are decidedly thickened and show many raised yellowish patches without, however, any calcareous formation. A thrombus is found in the coronary branch (anterior coronary) near the necrotic area. The myocardium is slightly pale but the acetic acid test shows no increase of fat. Heart weight, 370 gm. Valves normal, except aortic segments which are a little stiffened but without calcareous plates."

Microscopical examination of the coronary arteries show well advanced changes of arteriosclerosis with retrogressive changes in the thickened intima layer. Numerous hyaline spaces are seen and again necrotic patches extending into the media. The lumen is narrowed, irregular in outline. There is a characteristic subendothelial connective tissue increase. The endothelial lining has nowhere remained intact. The connective tissue cells are relatively scarce. There is an occasional round-celled infiltrate surrounding necrotic masses. Elastic layer split up.

A section from the center of the area of degeneration in the left ventricle shows a homogeneous poorly stained mass with very little indication of muscle fibers. There are quite numerous normal, and a few degenerated red blood corpuscles; scattered white cells, the majority of which are well stained; some pigment granules. Sections from the periphery of this area reveal muscle fibers in various stages of degeneration. Evidence of regeneration is shown by the presence of various forms of granulation tissue cells, situated between the degenerated muscle fibers.

The left ventricular wall at the upper part of the ventricle shows a slight increase of interstitial tissue, a distinct increase in brownish pigment around the poles of the nuclei, but very little thinning of the individual muscle fibers. The smaller vessels in this section show the indications of the arterial disease.

We have, therefore, in a man eighty-three years of age, a spontaneous rupture of the heart as a result of myomalacia cordis, the accident being determined by mental and physical excitement. The infarction which had existed sufficiently long so as to show signs of repair resulting from a thrombus in the anterior coronary artery.

The most noteworthy feature of the case is its rarity. Krouskoff reports only three cases in eight thousand autopsies. The site of the rupture in relation to the area of degeneration at the apex of the left ventricle is somewhat unusual, yet it can be correctly designated as a rupture of the left ventricle near the tip, a common location. Odriozola reports rupture of the left ventricle in 96 out of 132 cases which he collected from the literature.

The age of the patient, the condition of the arterial system, were favoring conditions almost invariably cited in cases of spontaneous heart rupture. The pre-existing myocardial disease, anemic necrosis, is regarded as a less frequent cause of heart rupture than other degenerative diseases of the myocardium. It is unfortunate that the accident occurred at a time which precluded the possibility of observation, as the mode of death in these cases is of interest.

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Typhus Fever in Philadelphia. — A case of typhus fever has been discovered in Philadelphia in the person of a young man recently arrived from Denmark. The patient was removed to the Municipal Hospital, where a fatal termination ensued. This is the first case of the disease in Philadelphia since 1888. — *Medical Record.*

MEDICAL DEPARTMENT OF THE JAPANESE ARMY.

BY MAJOR CHARLES LYNCH, M.D.,
General Staff, United States Army.

(Concluded from No. 4, p. 96.)

TUBERCULOSIS is common in Japan and probably also in China. The Japanese do not seem to have yet adopted modern methods for the care and isolation of cases of this disease, and the spread of tuberculosis in the army was considerable.

Neither diphtheria, scarlet fever, measles nor mumps was common. In view of the importance of measles and mumps as causes of sickness in newly raised troops with us, it is interesting to note that the Japanese ascribed the immunity of their army from these affections to their great prevalence in childhood.

Recurrent fever, cerebrospinal meningitis, leprosy, erysipelas and tetanus were all seen, but none of these occurred frequently enough to make it worth while to describe it.

The Japanese were remarkably successful in preventing venereal disease in their army. Japan has carefully segregated and examined prostitutes for many years, and has provided for the removal of those afflicted with venereal disease from the houses of prostitution, with their compulsory treatment. Practically the same methods in vogue in Japan were pursued in Manchuria, a few Chinese prostitutes being permitted to practice their calling in Mukden, Tehling and other large towns there, but always under the strictest supervision of the Japanese authorities.

The usual method by which the sanitation of an army is judged is by comparison of the number of deaths from disease with those from wounds. This is, at the best, very rough and may be misleading. However, there is little hope that we will ever be able to get the percentage of deaths in the total force from the Japanese, and custom seems to have well established comparison of the number of deaths from disease with those from wounds for army statistics. So far as I have been able to learn, the deaths from disease and those from wounds in the Japanese army, in the recent war, were just about equal in number, and taking the conditions of the service in that war into account, this was a remarkably successful result, of which the Japanese have good reason to feel proud, though I know personally that they are hoping and planning for better ones in the future.

["Since this paper was written, the Minister of War in Tokyo has made the following return of casualties as occurring in the Japanese Army in the recent War: killed, 47,152; died of wounds, 11,424; and died of sickness, 21,802. It will therefore be seen that nearly 74 % of the total number of deaths were due to wounds, and 26 % to disease. Though the figures given are so favorable to the sanitation of the Japanese Army, that they set a new standard to be striven for in armies, there is absolutely no reason to question the good faith of the Japanese in this matter."]

The practice of medicine on the Japanese side in the recent war requires but a few words. The contagious diseases which they encountered have already been described at length under their sanitary aspect, and their methods for the treatment of these and also for pneumonia, rheumatism and bronchitis, which were frequently seen, do not differ from ours. Their constant and intelligent use of the microscope for diagnosis, even well up to the front in the field, is to be commended. The Japanese are peculiarly prone to allow patients with serious illness to assume a sitting posture, and I cannot but think that this was a dangerous practice, particularly so, as many of these men had bad hearts from beriberi. In all the Japanese hospitals, except the most advanced, separate rooms are provided for the very ill. Without their large personnel this would be impracticable, though it would always, as with them, be much better for the patients. The percentage of deaths in both dysentery and typhoid was rather high, between 7% and 9% in the former, and from 15 to 18 in the latter. The Japanese ascribe this to the fact that many of these patients had beriberi and so weak hearts. I saw no scurvy in the Japanese, except among some prisoners who had been confined at Port Arthur. Among the Russians at this fortress, hundreds of cases of this disease were under treatment at the time of my visit there. On account of their poor ration, scurvy is not particularly uncommon in the Russian army, even in time of peace.

Some of the surgical problems met with in the war are of great interest. Practically all wounds were caused by rifle fire, shrapnel or shell, explosives and swords or bayonets. As in any war, many more wounds were due to the rifle than to all other weapons combined. In the First Army, I have complete statistics. This was always engaged in field, and not in siege, operations. Its percentage of rifle wounds is given as 84, shell 14 and bayonet 0.9, the remainder being miscellaneous or untraced. In the Third Army, which, up to the battle of Mukden, was at Port Arthur and so had only one field fight, that of Mukden, the rifle wounds were 59.44%, cannon 19.63%, bayonet 0.69%, miscellaneous 12.13%, untraceable 8.11%. Complete figures for the Second Army at the battle of Mukden are, percentage of rifle wounds 85.83%, shell wounds 13.73%, bayonet wounds 0.45%. From these figures it will be seen that, though the rifle has retained its preeminence, as the wounding weapon in war, shell wounds have notably increased. In the field, nearly all wounds classified as shell were caused by shrapnel. The large number of shell wounds certainly shows that artillery is useful for other than its mental effect. Some wild statements in reference to the frequency of bayonet wounds have been circulated; even as large a percentage as 7 of all wounds has been ascribed to it. As a matter of fact, in the whole war, not 1% was due to this weapon. The large number of miscellaneous wounds in the Port Arthur army is notable. Most of these were caused by hand grenades, which were used largely there, and to a considerable extent in the North, in attacks on intrenched positions. All of these grenades were actually thrown by hand in the early part of the war, but, later, the Japanese made little mortars, some of them of wood, in which a small charge of powder gently lifted a can containing a high explosive, usually Shimose, about two hundred yards, where a frightful explosion would occur. The First Army reports 32.03% of severe wounds, 53.50% slight, 14.47% very slight; the Third Army 26.76% severe, 69.60% slight, 3.54% very slight. The Japanese classify as a severe wound one which requires the recipient to be carried from the field. Actually, some very severely wounded men staggered back to the dressing stations alone or with the assistance of less badly hurt companions. The figures in reference to the severity of wounds do not differ practically from the ones which are used to calculate transportation, which will be needed for wounded in battle. The total number of wounded in the First Army was 16,811; the number of killed 4,789. In the Second Army 10,070 were killed, 38,159 were wounded; and in the Third 19,363 were killed, 76,586 wounded. The proportion of killed to wounded was, therefore, higher than in other recent wars. The location of wounds, based on 7,489 non-selected cases in the Second Army, showed the following percentages: head and neck, 16.08; trunk, 30.31; arms, 25.16; legs, 28.26; sexual organs, 0.20. The percentage of head wounds is rather higher than that usually found in field fights. This would be expected, however, as the men were frequently intrenched, so that the head was much exposed relatively. The percentage of wounded, according to branch of service, with the Second Army, from May, 1904, to include January, 1905, was, for the infantry, 36.27%; engineers, 14.33%; artillery, 8.44%; cavalry, 6.22%; sanitary corps, 5.52%; surgeons, etc., 4.66%; train, 0.51%. The percentage of wounded surgeons and sanitary corps is much lower here than it was for all the armies in the whole war. I have other reports, which show that their percentage of casualties was between that of the infantry and artillery. Of the wounded with the Second Army, 19% recovered in the field, 65% were sent to Japan and 16% died.

The Japanese rifle has calibre of but 6-5-10 mm., while the Russian is a 7-6-10. This made a tremendous difference in the relative humanity of the weapons, the Japanese being much more humane and permitting less careful methods of dressing to insure the non-infection of wounds; while from a surgical standpoint the extremely small calibre of the Japanese rifle is desirable, it is a great question in my mind if they have not carried their desire for flat trajectory and ability to carry a greater number of cartridges too far, and have so sacrificed the stopping power of the bullet to such an extent that their weapon does not yield the best results in war. Certainly, men will come on when such a bullet as the Japanese has passed through their body almost anywhere, except at a vital point. Numbers of bullet wounds of soft parts, caused by the Russian rifle, suppurated, and practically all those which involved bone. In the winter, at least, many bullets were deformed by striking the ground before inflicting wounds, and all wounds, caused by badly deformed bullets, suppurated. Shrapnel bullet wounds practically all suppurated, and wounds made by pieces of shell invariably did so. Frightful injuries were caused by the high explosive in hand grenades, tearing and lacerating limbs, so that they almost invariably required amputation. Personally, I saw but one sword wound among thousands of cases, and it was almost impossible for me to find bayonet wounds; the few seen were not severe injuries. The Japanese were extremely unfortunate in having a very bad first-aid packet. Several slightly different types were issued, but none was good. All had very small compresses of gauze, which were so folded that it was practically impossible to place them on a wound without soiling them in handling; some few had a gauze roller bandage to retain the compresses in place, but the greater number had only a triangular bandage, with which it was not possible to hold the compresses on wounds. The worst form of packet had a rubber protective layer. This has not yet been excluded from the first-aid packets of some other nations, though modern surgery teaches that it is absolutely out of place in them, as with it heat and moisture will invariably cause suppuration. The cover of the Japanese packet was cloth, and it was not impermeable to water. The men had, as a rule, been fairly well taught in the application of the first-aid dressing, but even so, this could not compensate for its great defects, and a great deal of suppuration was, without doubt, due to its worthlessness for the purpose for which it was used. It is but fair to say that the Japanese appreciated the faults of their packet and, even before the war was over, were planning to change it. At the Medical Storehouse in Tokyo, the officers in charge were especially impressed with the good qualities of a United States packet, of a type which was recently tried, but which has since been replaced by a better one. The Japanese were not familiar with the latter.

Just as in the Boer War, a great number of cases of false aneurism were caused by the small calibre bullet. These traumatic osteomyelites and the repair of deformities constituted the most interesting cases seen. The surgeons say few deaths from primary hemorrhage occurred on the firing line. As far as known, no abdominal wounds were operated on early by the Japanese. The Russians at Port Arthur are said to have made some abdominal sections for the repair of recent intestinal perforations, but to have had such bad results that they abandoned operation in such cases. The severity of wounds through the lungs was a great surprise to me, as such wounds were so comparatively trivial in Cuba, and in the Philippines, when made by the small calibre bullet. The explosive effect of the rifle bullet on bone, at short ranges, was marked.

On account of the climatic conditions under which some of the battles were fought, a great many cases of frostbite occurred. At the fierce fight at Hei-Kau-Tai, which, it will be remembered, was in the last few days of January, 1905, some 1,200 to 1,600 Japanese were so badly frostbitten that amputation was required with all of them. The weather was extremely cold there, and the lines of the opposing forces were so close together that it was impossible to collect all those hit promptly. Wounded were usually found to suffer frostbite in an injured limb because of interference with the circulation from the injury. The Russians state that they had much more suppuration in winter than in summer, and it is probable this was also true for the Japanese. Whether devitalization of wounded tissues by cold had anything to do in promoting the appearance of pus in the cold weather is an interesting question, but one to which I can supply no answer. At Mukden, the weather was not nearly so cold as at Hei-Kau-Tai, and only a little over two hundred soldiers in the Second Army were frostbitten. Almost all of these were in divisions which attempted to cut off the Russian line of retreat. Their failure to accomplish this allowed their wounded to fall into Russian hands, which did not minister to their wants promptly, two or three days sometimes elapsing before they were taken from the field.

A few words must now suffice to describe the organization of the Medical Department of the Japanese army. At its head was the Chief of the Medical Bureau of the War Department, who was also *ex-officio* Inspector-General of Field Sanitation. Each army in the field, the divisions there and those at home, the Liao-Tung Garrison and the lines of communication of each separate army had its chief surgeon, with a liberal number of commissioned assistants and a large office force. Each of these medical department administrators is freely consulted, in reference to his own department, by his commander, and takes part in councils of war. Each also is in close touch with the heads of other staff departments of his unit. At home, hospital cars were provided, and in the field, ordinary baggage cars and open trucks were used for the same purpose. At home, division hospitals were established, sufficient in capacity to care for from 75,000 to 100,000 patients, and on the lines of communication, hospital accommodations were made for about 30,000 more sick and wounded. During the war, twenty hospital ships were in commission. These brought back 281,587 patients to Japan. In the lines of communication of each army were found stationary hospitals and departments for the transportation of patients in the proportion of one to each division. At the front, with each division, were four field hospitals and one large sanitary company for the collection and aid of wounded on the field of battle and their transportation to the rear. No regimental hospitals were operated, but each such organization had its medical personnel, which accompanied it in battle. In addition to the main Manchurian storehouse, which has already been referred to, numerous branches of this depot were operated. Each army and each division had also its own storehouse. The personnel allowed for all these medical department organizations was large: that considered sufficient by the Japanese for the actual care of one hundred sick and wounded in hospital has already been given in the relief detachments of the Red Cross Society, which originally obtained the figures from the army. This, it will be remembered, is as follows: Two physicians, one pharmacist, one clerk, two chief nurses and twenty nurses or attendants. For all Japanese hospitals, personnel is calculated on these figures, but in addition, a large administrative staff is provided, as are also bacteriologists, pathologists, chemists and surgeons, intendance officers, and as many laborers, washer-women, boys, etc., as the hospital director considers necessary. With medical department organizations, other than hospitals, personnel is provided with equal liberality. Wounded were promptly collected on the field and sent to the rear for treatment, where enough hospitals were available for them and for the sick. Stores were rapidly replenished, even at the front, in battle. The personnel allowed was sufficient, but no more than sufficient, for the operations of the medical department.

CONCLUSIONS.

There can be no doubt, I think, but that the organization of the Japanese Medical Department was a good one, that the methods for the utilization of the Red Cross proved ideal for the army, in that it supplied a large trained personnel to re-inforce the medical department, just as though it was actually a part of that department, and that the medical skill, available in Japan, was taken advantage of in large measure in her army. It is equally certain that, by means of these various agencies, the Japanese succeeded in promptly succoring wounded on the field of battle, in removing them to the rear and in providing good hospitals, with ample supplies for them, everywhere, nor was it necessary for Japan to pass through any early period of confusion in her medical department, during which soldiers suffered for lack of care and attention to which they were justly entitled.

While these results are only those which should be attained by every country in caring for its soliders in war, the study of other armies does not show that they have generally done so. The success of the Japanese must be ascribed largely, of course, to the fact that, in time of peace they prepared for war, and did so in their medical department, as well as in all other departments. Aside from such preparation, it is interesting to search for the reason for their success. In my opinion, this may be ascribed to a large personnel and to free expenditure of money, with easy methods of accounting for it. If their personnel had not been sufficient in numbers, no matter how well trained it might have been, they must have failed, as has every other nation, under like conditions. In the expenditure of money they did not stint their medical department in any particular, and they cut every knot of red tape, so far as war was concerned, so there would be no difficulty in making the necessary purchases. Whether this resulted in losses to the government nobody but the Japanese will ever know, but that any great sum was appropriated to unauthorized uses is inconceivable. That the good results accomplished can be ascribed wholly to the medical department is not true. It was but one part of an excellent organization, and while it performed its duties well, it was greatly assisted by the good work of other departments. In protecting the health of soldiers the Japanese did wonderfully well. There was sickness, and a good deal of sickness, but it is not believed that, with the exception of beriberi, very much of that which occurred could have been prevented. In my opinion, the reason that the Japanese escaped those epidemics which have ravaged armies in the past is largely because they led their personnel, generally, to appreciate the importance of sanitary measures to protect their health. Good hygiene was much promoted by the patriotism of the soldiers and by that of the people, and the thorough discipline of the army, as a whole, was a great factor in preventing men from disregarding sanitary rules. Some criticisms have been made in the body of this paper, and the Japanese certainly have no God-like attributes, but, like the rest of us, are human and so prone to err. They have, however, the practical, sane faculty of learning by experience; their sanitary work and their provisions for the care of sick and wounded were much better in their recent contest than in their struggle with China; they have taken to heart the lessons of the Japanese-Russian War, and others will do very well if they profit by them to an equal extent.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON,
AND
HARVEY P. TOWLE, M.D., BOSTON.

TREATMENT OF SYPHILIS IN WIESBADEN.[1]

The writer emphasizes at the outset the advantages offered by treatment at a watering place, where the patient is able to give practically all his time to the cure, and where the temptations to exceed in any way are reduced to a minimum. Besides these indirect factors, there is a further advantage to be derived from carrying out the mercurial course at a watering place, that is to say, the combination of mercury with hydrotherapeutic measures. Touton wishes to call attention to the use of warm springs containing salt as aids to the mercurial treatment.

The Kochbrunnen is the chief spring used at Wiesbaden, and is a type of simple salt water containing 6 to 8 per thousand of sodium chloride at a temperature of 68 to 75 centigrade. As evidence that the internal use of sodium chloride is of value as an addition to the mercurial treatment, authorities are cited to show that salt solution, while air is admitted, is capable of dissolving calomel, red precipitate, mercuric and mercurous iodide, as well as free metallic mercury, into the per chloride. Corrosive sublimate itself is much more soluble in salt solution than in water. It is stated by Griesinger that in sailors who live on highly salted food, the use of calomel is followed by very marked effects; and the mildness of the effects of calomel in children is explained by the small amount of salt in their food.

Touton, together with other specialists in Wiesbaden, prefers the thorough method of inunction, when possible, to other modes of taking mercury. It is only in the rare cases of idiosyncrasy that he has recourse to subcutaneous injections. The "cure" can be taken at any time of year at Wiesbaden. Exercise in the open air is encouraged, as well as general hygiene. The patient drinks from 200 to 400 gm. of Kochbrunnen before breakfast while moving about. Two hours after breakfast, he takes a twenty-minute bath of Kochbrunnen at a temperature of about 35° C. The temperature and the length and frequency of the baths are regulated by the nature of the case. Baths are given, as a rule, every other day. Syphilitics who have rheumatism or gout may take them more frequently and at a higher temperature. Cases of cerebral syphilis, with a history of past apoplexy, as well as those suffering from cardiac affections, must either be forbidden to bathe, or should take the baths seldom and with caution. After the bath an hour's rest must be ordered, and then the inunction is made by a skilful masseur, with the bare hand. Touton uses a 33⅓% ointment of mercury in a base of resorbine, and large surfaces of the skin are covered at a time, on the theory that the chief effects of mercury in treatment by inunction are due to inhalation and cutaneous respiration of the evaporating metal. The rubbing lasts, as a rule, ten minutes, and 3 to 5 gm. are used. The underclothes are worn in bed, and are not changed too often. An hour before the mid-day meal, the patient drinks a further 200 gm. of Kochbrunnen, and sometimes the same quantity again in the afternoon between four and five o'clock. The course generally lasts from thirty to forty days, longer in severe cases.

Modifications of this method must naturally be made in many instances; iodide of potash is frequently indicated; diaphoretic methods are often combined with inunction, especially electrical light baths. These are especially indicated in so-called tertiary cases, and also in malignant early cases. They also increase the effect of the baths and water cure.

Tabes seems to be favorably influenced by treatment at Wiesbaden. In some cases the disease has been entirely arrested, and the patients have remained free from all discomfort. Leucoplacia of the tongue and mouth is often favorably influenced, and a mild Kochbrunnen water is beneficial as a mouth wash.

Touton, in conclusion, sounds a note of warning against premature treatment, when the diagnosis has not been fully established by the swelling of the inguinal glands. Such premature treatment does no good and often obscures the diagnosis.

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[1] Touton: The Practitioner, July, 1904.

THE AGE INCIDENCE OF HERPES ZOSTER.[2]

Evans believes that under the title Herpes Zoster, as commonly used, are grouped several diseases which are distinct both as to etiology and course. This view is supported, he thinks, by the fact that the disease is most prevalent at two distinct periods of life, under fourteen and over forty. He maintains also that the symptoms vary according to the period in which the disease occurs. This is particularly shown by the difference in pain; for whereas pain is rare in children it is common in adults and often bears no relation to the extent of the disease, sometimes being out of all proportion to the eruption. This difference in pain, he thinks, points to an etiological difference. The origin of the disease is multiple, although he inclines to the view of a microbic origin because of the occurrence of epidemics and because of its seasonal prevalence.

ETIOLOGY OF INFANTILE ECZEMA.[3]

Hall endeavored to solve this question by a careful analysis of 59 cases. His conclusions were that more males were affected than females; that the majority were born in middle or late maturity, that children of large families were not more often affected than those of smaller, and that the second and third born were quite as often the subjects of the disease as the first born. Heredity played no part as but a very small proportion of the mothers had had an actual outbreak of eczema, and in the large majority of the cases no other child in the same family was affected. The disease usually begins between the end of the first and the beginning of the fifth months upon some part of the head. He found further that the most cases occurred in the coldest months and the fewest in the warmest months. As to the effect of feeding and dentition he states that 86% were breast fed and that the majority of the cases preceded the first dentition, often by months.

THE TREATMENT OF ERYSIPELAS BY WOLFLER'S METHOD.[4]

Bier's recent reports of his method of treating inflammation by means of passive hyperemia, artificially produced, led Payr to review the earlier methods of Wolfler and others which were once much used and with good success. In 1888, Wolfler recommended the use of plaster strips in the treatment of erysipelas. The strips were applied firmly about the affected area with the idea of preventing the further spread of the disease. The skin thus inclosed often swelled and became markedly edematous, but the rapid disappearance of the redness and the fever and the limitation of the spread were striking. In 1892, Schneider advocated painting a strip of collodion about the diseased area. Kroel used caoutchouc in the same way. Payr now attributes the results obtained not to a mechanical walling off of the process, but to a passive hyperemia. These methods therefore differed from Bier's only in detail. Payr advocates the use of the passive hyperemia method in erysipelas very strongly whether the disease is on the extremities or on the head.

CUTANEOUS MANIFESTATIONS IN CHRONIC APPENDICITIS.[5]

Fournier states that he has observed various skin eruptions which occurred in connection with chronic enterocolitis, with frequent outbursts of appendicitis, which recurred or were aggravated with each outburst, which resisted all treatment locally or by drugs, and which disappeared only when the patient had been put upon a strict vegetarian diet. Fournier considers the occurrence of such eruptions very significant as they led in one case to the discovery of a hitherto unsuspected appendicitis and in other cases confirmed the diagnosis.

THE DIAGNOSIS OF SCARLATINIFORM AND ERYTHEMATOUS ERUPTIONS.[6]

Heath describes scarlet fever as follows: The eruption which is of a very bright brick red color appears first upon the chest, neck and upper arms and thence spreads downward. It reaches its height in two days and then begins to fade, disappearing first from the parts first involved. In six or seven days it has cleared up entirely. The eruption is composed of two elements, first, very closely set, minute, red papules and, second, an erythematous blush surrounding the papules. If the typical punctate eruption appears upon the face at all it is only around the forehead and temples. While the face is intensely flushed it is characteristic of the eruption that the region about the mouth remains pale. A fine, powder-like desquamation, like the bloom on a peach, soon develops over the flushed surface which Heath considers very suggestive. Desquamation usually is well marked by the seventh day and begins upon the face, neck and chest. On the trunk, neck and limbs the desquamation is in the form of thin lamellæ which have a characteristic " pin-hole " appearance.

German measles, he says, appear first upon the face in the form of scattered pinkish-red spots or macules which are darker in the center than on the periphery. The rash spreads downward from the face and so rapidly that it will often reach the feet within twenty-four hours. In some cases the rash is hyperemic and resembles measles closely, in other cases it is scarlatiniform, while in a third class of cases both types are present at the same time. Occasionally, instead of spreading over the whole body, the eruption remains limited to one part, such as the trunk or the limbs. The individual spots may remain discrete or coalesce to form irregular erythematous patches. On the face they fade quickly as a rule, but on the trunk and limbs they may run together to form a typical scarlatiniform rash. Desquamation may or may not occur. When present it is furfuraceous. The duration of the disease is two or three days.

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[2] Evans: Brit. J. Derm., 1905, xvii.

[3] Hall: Brit. J. Derm., 1905, xvii.

[4] Payr. Wien. Med. Wchnsch., lv, p. 1821.

[5] Fournier: Jour. des Mal. Cut. et Syph., Dec., 1904.

[6] Heath: Birmingham Med. Review, Oct., 1904.

In measles the eruption appears first upon the temples, at the margin of the hair on the forehead, behind the ears and upon the neck. The rash is composed of papules which are at first small, but which soon become larger and distinctly raised. They are often more or less grouped and may tend to form crescents. The color which is red in the early stages becomes more purple in the later. The eruption spreads from the face downward and reaches its maximum on the third day. A flush often accompanies the eruption on the face, and unlike scarlet fever the rash invades the region about the mouth.

Heath also considers the differential diagnosis of the various artificially produced erythematous rashes and of the scarlatiniform rashes following the use of such drugs as copaiba, antipyrin, belladonna and the like. Concerning enemata he says that they may be followed by a brilliant scarlatiniform rash which may occur either in patches or cover the whole body. Although such rashes are most common after the use of soap and water enemata they may occur after any kind, and in all cases tend to appear on several parts of the body simultaneously, more frequently however appearing upon the limbs first.

Erythema scarlatiniforme is described as a recurrent rash which spreads rapidly and covers the whole body in twenty-four hours. There may be moderate fever and there may be small areas of edema also. Desquamation may begin about the third or fourth day or may be delayed, and is usually much more abundant than in scarlet fever. Relapses are common. It may be very difficult to distinguish the disease from scarlet fever, but in the latter the desquamation is seldom marked before the tenth day.

URTICARIA PIGMENTOSA.[7]

E. Graham Little offers an interesting contribution to the study of this peculiar affection. He begins by describing 14 cases that he has himself observed, with a description of the histological features of all but 2. He has searched the literature very thoroughly, and has tables which deal with 154 cases. From this he deduces that urticaria pigmentosa is not so excessively rare a disease as it has hitherto been described. The largest number of cases have been published by English writers. From an analysis of his tables it is found that 61 $\frac{7}{10}$ % were in the male sex, and that there is no proof that heredity plays a part. It is more common in light colored persons than in dark. In more than one half the cases it begins before the age of six months, in about 70% before the end of the first year. It varies in its mode of onset, in perhaps the majority of cases beginning in the form of an urticarial lesion with pigmentation developing later. In one of his own cases the eruption appeared suddenly after vaccination, and in several other cases in the literature it has developed after vaccination or an acute exanthem.

There are three types of the disease: First, one in which the eruption consists entirely of macules; second, in which it consists entirely of nodules; and third, a mixed form in which both types are found at the same time. It is sometimes difficult to say whether there is any elevation of the lesion or not.

With regard to the distribution, the trunk is, perhaps, the most extensively affected part of the body on the whole. The face, palms and soles are least often affected. In several cases it has been described upon the mucous membrane of the mouth. The color is represented by varying shades of brown, which are very evanescent, as the lesion loses its brown color when irritated and thereby reddened. This feature he considers of great clinical importance, as by it other pigmentations may be distinguished from utricaria pigmentosa. As regards shape, the nodule and macule are most often oval or circular. Patches are variable in size and do not apparently grow larger as they grow older. It was found in two cases that the intervening, apparently normal, skin showed pathological changes microscopically in the presence of an abnormal number of mast cells and an increase in the amount of pigment. The lesions may be in very large numbers or restricted to a single example. In certain cases it was possible to produce new lesions artificially by scratching the apparently healthy skin. A wheel appeared, followed by a permanent pigmentation. The duration of the pigmentation is usually a very long one. The writer has not personally ever observed its entire disappearance, although this has been reported. The tendency to have fresh outbreaks slowly diminishes, and finally ceases.

In a large proportion of the cases tabulated, the itching was either very moderate or entirely absent. Other subjective symptoms are wanting, and it is a fact that the disease seems to occur in people who are otherwise particularly healthy. Two features are mentioned as especially prominent in urticaria pigmentosa; dermographism and general enlargement of the glands. The glands do not suppurate, but remain as hard swellings.

As to prognosis, the affection is usually said to disappear spontaneously. With regard to the disappearance of the pigmentation, it is doubtful, if this is taken as a standard, whether any case can be called absolutely cured. The writer has compiled a list of nineteen cases where the disease had persisted fourteen years and upwards at the time of record.

The writer's histological investigation showed a thinning of the epidermis over the mast cell tumors, of which the so-called urticarial lesion is made up. Pigment was present in the epidermis oftentimes and in the coreum in special cells. Pigment is probably present beyond the margin of the actual disease, and in one case a portion of apparently healthy skin, when excised, showed the presence of pigment.

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[7] British Journal of Dermatology, October, November, December, 1905, and January, 1906.

With regard to the mast cells, they are found most commonly about the blood vessels, which are often outlined by the presence of these cells. The hair shafts and sweat glands and ducts are more or less surrounded by mast cells also. The blood vessels are usually dilated, and the elastic tissue forced apart by interstitial tension.

There is no unanimity as to the etiology of this disease. Tilbury-Fox called it xanthelasmoidea, as he considered it a form of xanthoma, and this name the writer thinks preferable to that of orticaria pigmentosa, since the later implies that it is a form of urticaria. It has been thought that neurotic causes were active in this disease, and it is true that many of the victims have had relatives affected with nervous troubles or have been themselves thus affected. Neisser believes that the two conditions, urticaria and tumor-like formations, are two different things, the tumors being of an inherited form and disposition, like the embryo deposits in tumors, while the urticaria is only the chance cause of these appearances. As to urticaria, in a majority of the cases, the symptoms differ very widely from those of urticaria. The disease begins earlier in life, is not preceded by digestive disturbances, the itching is not severe, and it responds poorly to treatment.

Investigations were made into the condition of the blood, and the conclusions are that in urticaria pigmentosa there is a definite modification of the red corpuscles, tending to increase the resistance to destructive agents. The amount of salt-content is increased, and the content in lime salts is at least not diminished. In view of the fact that all the characteristics found in the blood in urticaria pigmentosa have also been found in hemophilia, purpura, etc., it seems more natural to consider the disease as allied to so-called blood diseases.

LUMBAR PUNCTURE, THE INFLUENCE OF, ON THE PRURITUS OF THE LICHEN OF WILSON.[8]

Thibierge and Ravaut stated in a communication to the Société Française de Dermatologie that they had been trying for years to apply lumbar puncture and the cytologic examination of the cerebrospinal fluid to the study of the pruriginous cutaneous diseases and especially to the study of lichen planus. They hoped to learn by this method something of the part which the nervous system plays in these affections. So far as the cytologic examination of the fluid removed was concerned the results were negative for it was normal in eight cases, and in the ninth showed only a slight leucocytosis. They noticed, however, that all the cases showed a marked diminution in the itching within six to twenty-four hours after the puncture. In two cases in which this symptom was particularly severe it even disappeared completely and finally after a single puncture. In a third case the eruption cleared up so that only a pigmentation remained to mark the site of the former lesions. None of the cases received any other treatment. They believe that although lumbar puncture can not be considered the only treatment for lichen planus, yet it can be of much real service in at least reducing the itching and in rendering the eruption more amenable to treatment. They now propose to undertake to determine the indications for lumbar puncture in the different forms of lichen planus and also the conditions in which local treatment should be associated with it.

THE RÔLE OF THE STREPTOCOCCUS IN THE PATHOLOGY OF THE SKIN.[9]

As the result of his study, Krzystalowicz is convinced that certain diseases of the skin are due to infection with the streptococcus. The clinical manifestations, however, vary according to the part infected, a superficial infection of the epidermis giving rise to different symptoms from an infection deep in the cutis. In impetigo the streptococcus is in the upper epidermal layers and the typical lesions are vesicles filled with clear serum which dry into honey-like crusts. The formation of pus is a secondary process due to the infection of the primary lesion with the staphylococcus. Krzystalowicz believes that pemphigus neonatorum is merely a variety of impetigo vulgaris occurring in the new born. Ecthyma is also due to streptococcic infection and is related to, if not identical with, impetigo. The impetigo-like lesions sometimes seen in lupus and syphilis, he says, are caused by streptococci. When the infection is deep in the skin, probably reaching the part through the lymph or blood channels, there results a lesion which resembles pemphigus or else an erythema strewn with small vesicles. Erysipelas and erysipeloid complete his list. He concludes that the lesions caused by the streptococcus are so manifold that the diagnosis can be rendered certain only by a histologic and bacteriologic examination.

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Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Proceedings of the Annual Meeting, Held at Cleveland, Ohio, May 30, 31 and June 1, 1906.

(Concluded from No. 4, p. 99.)

THE SERUM THERAPY OF TETANUS.

Dr. C. A. Porter, of Boston, Mass., emphasized the rational use of serum in acute or severe subacute tetanus. While some of the details upon which it had been founded might subsequently require changing, such a consistent method of attacking tetanus toxins, resting in the main upon well-founded experiments, had the merit of simplicity. In carrying out this treatment one should picture to himself the toxins traveling along the motor nerves of the arrested part, even upwards towards the higher motor ganglia, and also by absorption through the lymphatics, entering the general blood current, to be brought directly to the central ganglia through the motor nerve endings of the rest of the skeletal muscles. Antitoxin, to be effective, must reach the poison before it had entered the motor tract, or must by direct injection into the tissue immunize them in anticipation of the arrival of the after-coming toxin; or neutralize it locally before a stable compound had been formed.

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[8] Thibierge and Ravaut: Ann. de Derm. et Syph., 1905, vi, No. 2, p. 890.

[9] Krzystalowicz: Monatschr. f. Prakt. Derm. 1906, xlii, p. 1.

In the treatment he recommended the following: (1) Immediate intravenous and subcutaneous injections to neutralize the circulating toxin. (2) Immunizing or neutralizing injections at the highest level which the severity of the symptoms appeared to justify; directly into the cord, as advocated by Rogers; or into the higher motor nerves, such as the hypoglossal and spinal accessory, as suggested by the author. (3) Peripheral intraneural injections as near to the cord as possible. Where amputation was indicated or allowed, there was positive experimental evidence that nerve section would isolate the toxins in the limb. (4) Lymphatic absorption would be diminished by the application of Bier's principle of passive hyperemia, or by circumcision of the limb. (5) Parenchymatous injections, especially into the muscles, might be of distinct value in addition to subcutaneous and intravenous injections. (6) If possible, the local focus should be thoroughly eradicated. (7) We had no right to neglect symptomatic treatment. (8) When once the disease had progressed beyond a certain stage, animal experimentation gave us no ground for hope that any treatment whatever could be successful.

THE TREATMENT OF TETANUS BY MAGNESIUM SULPHATE.

Dr. Joseph A. Blake, of New York, said that from his experience in human tetanus intraspinal injections relieved spasm, so it must be inferred that they produced a block of nerve impulses by direct action on the nerve trunks. So far its employment in human tetanus had not been attended by uniform results. This might be due to different degrees of susceptibility on part of the patient, and partly by variations in technique, or lack of experience in the use of magnesium sulphate, on the part of the medical attendant. So far as he could ascertain, only four cases of tetanus had been treated with magnesium sulphate. Of this number only one recovered, and this was his own case. His case was one of acute tetanus in a boy of fifteen. The injections controlled the convulsions in this patient for periods varying from twenty-nine to thirty-seven hours each. His impression of this drug was that, although we could not be certain of its effect, yet it was reasonably safe and offered a means of modifying the convulsions and relieving pain in a way no other drug had approached. For those reasons alone it was worthy of a more extended trial.

THE PRESENT STATUS OF OUR KNOWLEDGE OF THE SEROTHERAPY OF SURGICAL AFFECTIONS.

Dr. Charles A. Powers, of Denver, stated that while there were a vast number of contributions to this subject, but very few of them bore the test of rigorous analysis. The majority consisted of scattered cases of recovery from sepsis, a serum having been employed. Scientific details were lacking. He said that in his analysis he would be guided by the following principles:

(1) Isolated reports of one or a few cases would be omitted. Most reports of this character emanated from physicians who, being perhaps unfamiliar with surgical diagnosis and operative management, chose the use of a serum when medical measures fail, and did not give their patients the benefit of ordinary surgical procedures.

(2) As far as possible, dependence would be made on the testimony of surgeons, embodied in systematic writings on infections, where, under the head of treatment, serotherapy was compared with other measures and a verdict thereby rendered.

(3) Scientific requirements should be fulfilled as far as possible. It should be shown in individual cases that a correct diagnosis had been made, and that the infection was a pure one. Further, the mere fact that a patient recovered was not sufficient for a demonstration. Further, given the special symptoms produced by a certain germ, it should be shown that the serum shortly after its administration favorably modified these symptoms so far as the latter could have been due directly to the specific toxemia or bacteriotoxemia of the disease.

But few articles reached this standard, and analysis of these showed that at present serotherapy was valueless in sepsis other than that due to tetanus. Antisreptococcic serum had failed to gain a place in surgery. This sustained Vaughan's contention of two years ago. The serotherapy of tetanus had a place, but its exact value was as yet unknown. It seemed probable that while it failed to cure severe and advanced cases, it had effect in early and mild cases. As a prophylactic measure, it seemed to have achieved a standing, yet many fatal cases developed despite its early use. Further, it was never possible without bacteriological proof to say that tetanus would have developed in the cases in which it was used as a prophylactic. The subject was at best a hazy one and the writer urged detailed reports of authentic and carefully analyzed cases by competent observers.

BACTERIOLOGICAL STUDIES IN THE SURGICAL CLINIC.

Dr. Willis G. MacDonald, of Albany, N. Y., spoke, first, of the necessity of constant cultural work in order that the personnel of the clinic was made alert and to feel a personal responsibility. Second, to establish consistent daily detail work, both in the wards and in the operating room, without constant criticism. Third, to be able to trace to its source occasional infection and remedy it before serious damage was done. Fourth, to establish the inefficiency of many plans recommended in medical literature which were essentially fallacious, as, for example, the four-fold gauze mask. There remained another and equally important function of surgical bacteriology, namely, its purely clinical and diagnostic value in tuberculosis, tetanus, actinomycosis and other infectious processes.

TRAUMATIC GASTRIC AND DUODENAL ULCER, DUE TO A DIRECT BLOW, REVEALED BY OPERATION.

Dr. A. F. Jonas, of Omaha, said the progress of cases of extensive contusions that occurred after severe blows to the stomach and intestines was rapid; death occurred early unless prompt surgical aid was brought to bear. It was difficult to judge correctly in cases where the injury had produced a contusion or laceration of a part of the gastric parietes, as, for instance, mucosa, or where a hematoma had developed between the coats of the gastric wall, *i. e.*, between the mucosa and muscularis.

Illustrative cases were cited showing the value of prompt surgical intervention.

Dr. A. J. Ochsner, of Chicago, reported his further investigations upon the anatomy of the duodenum, and detailed his clinical observations.

THE TREATMENT OF GASTRIC AND DUODENAL ULCERS AND BENIGN OBSTRUCTIONS OF THE PYLORUS.

Dr. Archibald MacLaren, of St. Paul, Minn., said the question how we might distinguish between medical and surgical gastric ulcer was of the greatest importance to the medical world to-day. It was known that some ulcers cured themselves, and that many gave no symptoms. Shattuck said: "There are only two conditions occurring in gastric ulcer which demand operation: (1) Perforation; (2) Obstruction."

He agreed with him in the necessity of operating in these two classes. In perforation due to an acute ulcer, if the opening could be closed, the wound sponged or irrigated, a large-sized suprapubic drain put in soon after operation, a large percentage would recover, with the aid of Fowler's position. In obstruction cases the condition was mechanical, and demanded mechanical relief.

One other class should be added to this list, *i. e.*, relapsing gastric ulcer; the ordinary medical treatment was useless in these cases; proper medical treatment was putting the patient to bed, taking away all food by mouth for some days, supplying water and nourishment by rectum. He reported two cases lately seen of congenital obstruction, one dying after gastroenterostomy, the other without operation.

Gastro-enterostomy was the most popular; posterior-no-loop operation, last described by Mayo, was the best operation. The anterior-long-loop operation was followed by a relapse, due to dragging of loop on the anterior suture line, producing contraction of the opening. Now that the anterior operation had given place to the posterior-no-loop operation, we did not hear so frequently of the necessity of closing the pylorus. The Roux was not necessary, and was more dangerous because of the two intestinal openings and two lines of suture.

EARLY OPERATIONS FOR CEREBRAL HEMORRHAGES OF CHILDHOOD.

Dr. Charles H. Frazier, of Philadelphia, said that in order to put on a rational basis the surgical treatment of epilepsy, greater discrimination must be made in the selection of cases. No opportunity should be lost in operations upon epileptic subjects to observe as closely as possible the existing pathological conditions. A more intimate knowledge of the pathology of the disease was necessary for the establishment of a basis upon which to determine the propriety of operative intervention and the character of the same. Epilepsy developed sooner or later in from 30% to 50% of cases of infantile hemiplegia. In many of these the lesion had been proven by autopsies to have been a hemorrhage and in children the hemorrhage was often either on or near the cortex rather than intracerebral, as in adults. The tendency towards secondary degenerative changes, such as atrophy, and softening, the greater disposition in epileptic subjects towards mental defects, especially idiocy, and the otherwise hopeless nature of the disease constituted the principal arguments for surgical intervention.

INTUSSUSCEPTION.

Dr. Ellsworth Eliot, Jr., of New York, contributed a paper on acute intussusception in infants and young children, in which he reported seven cases, with four recoveries and three deaths.

Dr. W. Joseph Hearn, of Philadelphia, reported a case of resection of the sigmoid flexure of the large intestine, and one and a half inches of the fundus of of the bladder, for carcinoma, from which patient made a good recovery.

PULSATING EXOPHTHALMOS; LIGATURE OF COMMON CAROTID, EXTERNAL CAROTID AND SUPERIOR THYROID ARTERIES.

Dr. Joseph Ransohoff, of Cincinnati, presented a case of this nature. The patient was twenty-one years of age, and after an injury to the temple had paralysis of the outer rectus and a pulsating exophthalmos. The pulsating exophthalmos did not come on until about four weeks after the injury was sustained. It was not known how long the paralysis of the abducens had continued. There was intense chemosis of the ocular conjunctiva which threatened to produce ulceration of the cornea. There was no pain, but great discomfort produced by the ringing and buzzing noises in the head. The case was treated by tying the common carotid, external carotid and superior thyroid arteries. This extensive operation was done through one incision and was made in order to prevent as far as possible the establishment of an anastomotic circulation too early. Three months after the operation, the patient continued well, without return of pulse in the facial or temporal artery. The abducens paralysis persisted.

The reader had collected 21 recent cases, in which the tying of the common carotid artery resulted in 14 cures. In 5 the cures were partial, or there was a recurrence. Death followed the operation in only one instance.

MEDICO-MILITARY NOTES IN MANCHURIA.

Gen. John van R. Hoff, United States Army, said that the remarkable sanitary results achieved by the belligerents in Manchuria had taught the world: (1) That there was no legitimate reason why in war the mortality from disease should exceed that from trauma. (2) That the extraordinarily large excess of deaths from battle injuries over those from disease, obtained for the first time in history, was directly due to the observance of well established hygienic rules, proper sanitary organization, sufficient personnel and adequate material, not to mention persistent fighting. (3) That so far as known to the writer, this war had developed nothing new in medical treatment or surgical technique; its one lesson for us was summed up in a single word, *prevention*.

The Russian hospital records in the Far East to Sept. 1, 1905, not including Port Arthur, account for 352,412 cases; of which 8,983 died in the theatre of war, 24,255 were discharged for disability, 120,394 recovered and 25,135 remained under treatment.

The deaths from disease, at home and abroad, totaled 18,830, from wounds in hospital 3,541, killed on the field 19,467, missing 39,729. A very large proportion of, if not all, the "missing" probably died on the battlefield, and if so counted would give 3.3 killed to 1 dead of disease. Applying the proportionate results of the Franco-German War, there were 37,642 killed and 25,095 missing, or 2 killed to 1 dead of disease.

The total Russian military population from the beginning to the end of the war was estimated at 1,400,000, which would give a mortality from disease of 13.4 and from wounds of 26.8 per thousand.

Among the three hundred and more thousand cases there were, to July 1, 1905: 10,449 of typhoid fever, 201 of typhus fever, 170 relapsing fever, 5,456 of dysentery, 209 of variola, 1,180 of scurvy, 11 of measles, etc. Of the 10,449 cases of typhoid fever to July 1, 1905, 1,041 died, and of 5,456 cases of dysentery, 236 died.

During the rainy season of 1905 (July to September), there was a duplication of the typhoid record of the previous year, the number of cases running up to about 7,000, making the total about 17,000, with a mortality of approximately 10%. The writer gives in considerable detail an account of the sanitary conditions in Russia, en route, and at the front, all of which were factors in the sanitary results.

Typhoid fever and bacillary dysentery were endemic in Manchuria, and the Russian military authorities had reason to anticipate that these diseases would cut a considerable figure in the morbidity and mortality bills.

The writer discussed at some length the predominating conditions in the spread of typhoid infection, and laid stress upon the fact that while water was probably the most potent factor among house dwellers, fly and personal connection cut the largest figures in the infection of camp dwellers. The Russian medical authorities, however, did not think that flies had anything to do with the spread of the Eberth bacilli, though they thought that the bacilli of Shiga were disseminated by this means.

The latrines were primitive, and wide open to flies; adequate police of camp grounds was impossible during the rainy season, as was the case with the tents and persons of the men, and flies swarmed everywhere.

The use of raw running water was absolutely forbidden, but, of course, this rule could not always be enforced. Where the camps were at all permanent, wells were dug.

The food habits of the Russian soldier were ideal, from a health standpoint. All of his food, except bread, goes into the soup pot. His national beverage is tea, which he received *ad libitum.*

It would appear that absolute isolation of typhoid cases was not practiced by the Russians. In summing up the typhoid results, the writer asked, "Can a field army do better?" And answered, "I think so, but there will have to be wider dissemination of knowledge of the laws of right living before the white man will do it."

The subject of camp dysentery was discussed at some length. A comparatively small number of cases of this scourge of armies appeared among Russians in Manchuria, and the mortality was little. The Shiga antitoxin was used with satisfactory results.

There were 13,000 cases of venereal reported, and 1,000 of insanity. No beriberi was noted.

The traumatic circumstances of the campaign were singular only in the extraordinarily large number of wounded and great mortality from artillery fire. Over 20% of the killed and wounded were chargeable to artillery, more than twice that recorded by the Germans in the war of 1870.

Wounds from cold steel cut little figure in the mortality, in spite of the sensational stories of terrific bayonet charges, etc.

The writer did not believe that the time had yet come to draw anything more than very general conclusions from the obtainable statistics of the war, but what was now known pointed to the probability of there being no occasion to modify the views held, regarding the effects of the high-powered, jacketed bullets, at different ranges.

As to celiotomy, or indeed any other immediately avoidable major operation, on the battlefield or in mobile hospitals, the consensus of opinion supported the view heretofore held that such was absolutely interdicted.

In these cases expectancy was the correct procedure, and rest and morphine the treatment.

The following papers were also read: "Surgical Treatment of Epispadia and Ectopy of the Bladder," by Dr. F. Trendelenburg, of Leipzig, Germany; "Inflammations about and Displacements of the Sigmoid," by Dr. Arthur T. Cabot, of Boston; "Technique of Ablation of Hemorrhoids," by Dr. Lewis S. Pilcher, of Brooklyn, N. Y.; "Radical Cure of Femoral Hernia," by Dr. William B. Coley, of New York; "Aspiration of the Thorax in Alleviation and Cure of Empyemic Cavity," by Dr. Joseph D. Bryant, of New York; "Excision of the Scapula for Malignant New Growths," by Dr. Frank J. Lutz, of St. Louis, Mo.; "Histological Basis and Limitations of Surgery of the Spinal Cord Based on Experiments, Clinical Experience and Histological Research," by Dr. J. B. Murphy, of Chicago; "Tetanus and Its Serum-Therapy," by Dr. Nathan Jacobson, of Syracuse, and Dr. Henry D. Pease, of Albany.

Mr. Hamilton A. Ballance, of Norwich, England, reported an interesting case of traumatic hemorrhage into the left lateral lobe of the cerebellum, which was treated by operation and followed by recovery of the patient.

OFFICERS.

The following officers were elected: President, Dr. Dudley P. Allen, of Cleveland, Ohio; Vice-Presidents, Dr. Thomas W. Huntington, of San Francisco, Cal., and Dr. A. F. Jones, of Omaha, Neb.; Secretary, Dr. Robert G. Le Conte, of Philadelphia, Pa.; Recorder, Dr. Richard H. Harte, of Philadelphia; Treasurer, Dr. Charles A. Powers, of Denver, Colo.

Place of next meeting, Washington, D. C., in conjunction with the Congress of Physicians and Surgeons, 1907.

Recent Literature.

On Carbohydrate Metabolism (A Course of Advanced Lectures in Physiology, delivered at the University of London, May, 1905), with an Appendix on the Assimilation of Carbohydrate into Proteid and Fat followed by The Fundamental Principles, and the Treatment of Diabetes Dialectically Discussed. By F. W. Pavy, M.D., LL.D., F.R.S., Honorary Physician to King Edward VII Hospital; Consulting Physician to Guy's Hospital. Philadelphia: P. Blakiston's Son & Co. 1906.

Pavy believes that carbohydrates are synthesiezd into proteid in the walls of the intestine and later transformed into fat, a part of the carbohydrates being stored up in the liver as glycogen. The essential process is carried on in the intestine through the agency of the lymphocytes, to whose action Pavy attaches great importance. Diabetes results if carbohydrate escapes assimilation in the intestinal wall and reaches the blood. Sugar in the blood implies free sugar in the urine. Only sugar in the blood which is combined with proteid escapes passage through the kidney into the urine.

The discussion of this theory with the supporting proofs constitutes the first portion of the book; the second part is an appendix and is devoted to a consideration of the assimilation of carbohydrates into proteid and fat, while the third portion applies the earlier views above mentioned to diabetes.

The volume will be found of more value to the physiologist than to the practicing physician.

A Nurse's Handbook of Medicine. By J. Norman Henry, M.D., Clinical Professor of Medicine, Woman's Medical College of Pennsylvania, etc. Illustrated. Philadelphia and London: J. B. Lippincott Company. 1906.

In this volume of 268 pages, unfortunately without an index, Dr. Henry has amplified a series of lectures given to the nurses of the Pennsylvania Hospital during the past four years. The book concerns itself especially with nursing in medical cases. Like many books, however, written for the benefit of the nurse, it goes quite beyond those facts which are essential in the prosecution of her work, and discusses various diseases and other matters which to our mind come within the province of the physician rather than the nurse. For example, we turn by chance, on page 95, to a heading entitled "Antitoxin Treatment of Disease," in which is given a brief and necessarily inadequate statement of the theory and practice of antitoxin treatment. It is exceedingly difficult to say where the line is to be drawn, but the extension of the nurse's attainments to matters outside her particular sphere seems to be attended with a certain element of danger. The book is clearly written and might well be put into the hands of the medical student as a general introduction to his study in clinical medicine. Several illustrations and a number of charts are included in the text.

Clinical Applied Anatomy or the Anatomy of Medicine and Surgery. By Charles R. Box, M.D., B.S., B.Sc. Lond.; M.R.C.P., Lond.; F.R.C.S., Eng.; Physician to Out-Patients St. Thomas's Hospital, and Assistant Physician to the London Fever Hospital, etc., and W. McAdam Eccles, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon St. Bartholomew's Hospital. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

The authors of this volume have attempted to construct a very useful type of book inasmuch as they approach the general subject of medicine and surgery from the anatomical standpoint. The close relationship which surgery bears to anatomy naturally lends itself to this form of treatment, but the practitioner of internal medicine too often regards his subject purely from the clinical relations rather than from the anatomical standpoint. The book nevertheless is written from the practitioner's rather than from the anatomist's standpoint and therein lies its merit. A large variety of conditions is considered, including disorders of the special senses, and the aim throughout has been to subordinate the clinical manifestations to the underlying anatomical details. The book is extremely well illustrated though not so profusely as many others, and should certainly serve the purpose of demonstrating, as the authors desire, that systematic anatomy has not yet said its last word in the education of the clinician.

The Operating Room and Patient. By Russell S. Fowler, M.D., Surgeon to the German Hospital, Brooklyn, N. Y. Octavo, pp. 72, 33 illustrations. Philadelphia and London: W. B. Saunders Company. 1906.

This book contains a description of the details of the work in the operating room of a modern hospital and the care of a patient under such conditions. It is a guide or manual for the surgeon, assistant nurse and attendant.

First discussed is the operating room and its *personnel.* Next, the instrument and supply room. Third, anesthesia. Fourth, the patient. Fifth, general consideration of post-operative treatment. Finally is given a classified list of the instruments and dressings commonly employed in especial operations.

The book is very attractively published. It is of convenient size. It is well classified and concisely written. It contains a large amount of valuable information. The description starts from the beginning, viz., the preparation of the room, selection of instruments, utensils, dressing materials, details of sterilization, etc., and finishes with the essentials in the care of the patient subsequent to operation. Details, as a rule, are minutely given. The text is supplemented with good illustrations. It is well paragraphed. It presents the essentials of technique and the information, a knowledge of which is necessary when the highest efficiency and best results are desired.

The author has not attempted to describe operative work in private; he deals only with work in a well-equipped modern hospital. In this he is wise, and avoids the mistake which is frequently seen in this class of book, of confusing the details of the one with the other.

Dr. Fowler has, however, written his book in such a way that although he describes only hospital work, he at the same time shows the principles from which the details of technique are derived and which the individual surgeon can adapt to his own special work. As a matter of fact a great deal of the text can be directly made use of in private work, as, for example, the classification of instruments for each special operation, the description of the position of patients best adapted for operations in different regions of the body, the preparation of solutions, local anesthesia, essentials of sterilization, etc.

The book is a personal one, *i. e.*, it describes the methods of operative work that its author is accustomed to follow. Some of the details will differ from the work of other surgeons.

In treating a subject such as aseptic operative technique, one so full of minute details, it would be surprising if some parts had not escaped attention, if some description was not complete (as for instance, the post-operative treatment of patients), that the personal "emphasis" of the writer was not always in the right place. But notwithstanding this, the book is a good one. It is written on the right plan, and it should be welcomed as a valuable guide to the subject of operative aseptic work.

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120 Boylston Street, Boston, Mass.

A MENACE TO THE TRAVELING PUBLIC.

A noteworthy article appears in the July 21 number of the *Outlook* on a matter regarding which the public is in much ignorance. In fact, the article is written for the purpose of bringing to popular attention a serious menace to travelers, ordinarily unrecognized. Its author, although his name is not disclosed, is clearly one who speaks with authority, as his introductory remarks show. After graduation from college, the writer, in order to gain practical experience in railway matters, filled various subordinate positions on a western trunk line. He finally became a conductor on a freight train, and while serving in this capacity had certain experiences which he very rightly now brings to public attention. The subject which he discusses is the fatigue of train crews under existing conditions. As he states the matter, " It is about weariness — sheer exhaustion, to speak forcibly and yet truthfully — that I wish to write a few pages in order that the public may appreciate fully how completely their lives and property depend upon the mental and physical condition of our freight train crews." The remarks which follow apply particularly to single track roads of which there are many still in existence. Alluding to a recent head-on collision between a passenger and a freight train with disastrous results, the writer states that the real reason was that the freight train crew concerned in the collision had been fifty-nine consecutive hours on duty, which offered a sufficient explanation for the statement given out by the road that the freight train crew had violated the despatcher's orders.

Apropos of this experience, the writer of the article narrates, in vivid style, some experiences of his own while acting as a freight train conductor. On one occasion the train crew over which he had jurisdiction worked for fifty-two hours without cessation, and fortunately without accident, due rather to good fortune than to the efforts of the wholly exhausted men constituting the crew. This sort of thing it appears is not at all uncommon during times of activity in the transportation of freight, and particularly where rival lines are concerned. We quote two pertinent paragraphs from this suggestive and timely article:

> " Nobody will question the necessity of a good night's rest to the performance of keen, accurate, and efficient work, and yet how many people are there to-day who realize that the freight train crews of our railroads, especially in winter and on single-track lines, are often on duty for twenty-four to thirty-six hours without sleep? The artisan, the laborer, the miner, the mill-hand and the clerk work but ten hours at the most during the twenty-four, and yet the men who share with the eight-hour trick despatchers the responsibility for the safety of the traveling public, rarely doff their overalls short of the sixteen-hour mark. They are paid overtime — of course they are — and at an increased rate per hour or per mile; but ask a dozen engineers and freight conductors whether the hardship of overtime is counterbalanced by the extra wages, and, unless some member of the group is trying to pay off a mortgage on a neat little cottage and lot, every man's answer will be an emphatic negative. Work that is paid for in blood should be prohibited, and the toilers supplanted by fresh, wide-awake comrades. . . . .
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> " The human factor, especially on single-track roads, the mileage of which far exceeds that of double-track lines, plays an important part in the safety of train movement, chiefly because the block system, owing to the enormous expense of installation is little used. But even where block signals are in operation, what meaning has the rigid semaphore and gleaming red lamp for sleep-closed eyes? And since the human factor is to be reckoned with, and since mechanical device cannot always guard against the failings of the human make-up, let us support the Interstate Commerce Commission in any and all measures to regulate the hours of work and of rest in the train service of our railways."

The foregoing record of personal experience from the pen of a most intelligent observer cannot fail to be salutary. There is much talk of the failure of the mechanical devices and the unavoidability of certain circumstances which lead to accidents, but after all, as clearly pointed out in this article, the human mind is ultimately at fault, and it behooves our railway corporations to see that the physical and mental condition of their employees does not fall below a standard which will render mental processes keen and quick. It is perfectly evident that an overworked man is incapable of profiting by the various ingenious means which have been devised to avoid accident if he is so fatigued in body that his mind acts sluggishly or perhaps not at all at a critical moment. We commend the article and the point of view it suggests to all who are responsible, directly or indirectly, for the safety of human life in travel.

INVESTIGATION OF FOOD PRODUCTS IN MASSACHUSETTS.

The Massachusetts State Board of Health has never suffered from a lack of activity in the prosecution of good work. The various industries of whatsoever sort under its jurisdiction have come to have a healthy respect for its authority, and the public at large has likewise come to feel that abuses are not likely to remain long undetected. The new series of the *Monthly Bulletin* of this Board gives an admirable and systematized account of the work accomplished from month to month and it is always instructive reading.

In view of the widespread interest recently taken in the conditions underlying the slaughtering and canning industries of the country, the current issue of this *Bulletin* is of more than usual interest inasmuch as it discusses the investigations which have been made of the slaughter houses, packing establishments, and sausage factories of Massachusetts. The public mind should be much set at rest by this report. Defects, abuses, and adulteration of food products are ruthlessly exposed, which gives one an added feeling of assurance when the report pronounces that the larger plants and a number of the smaller ones in this state are beyond criticism. This is reassuring, particularly in view of the fact that the report does not content itself with the mere statement, but gives definite details of the conditions existing in the establishments investigated. The smaller slaughter houses, as might be expected, are in a far less satisfactory state than the larger establishments. Of twenty-four of these smaller establishments only four proved worthy of commendation. The other twenty were found to be poorly ventilated, dirty, and often fly-infested in varying degrees. The drainage was also often at fault, and no proper provision was made for the disposal of the offal. Investigation of the sausage factories and canning factories of the state showed the conditions on the whole to be satisfactory. In many of these establishments there was an evident attempt at cleanliness and compliance with the general rules of hygiene. Much improvement, however, is possible.

The report on canned meats is, perhaps, of more interest as showing how far there is justification for the general doubt which prevails regarding these products. To bring before the public the exact truth regarding the situation, the State Board of Health has had collected and examined nearly one hundred and fifty different varieties of canned meats and meat products from all sources. The examination was directed toward the detection of chemical preservatives and the exact character of these preservatives. Here, again, it was found in general that many of the preparations were satisfactory, but that certain others, the manufacture of which involves grinding, are largely fraudulent in character in that they are not actually what they are claimed to be. Such preparations are potted tongues, chicken, beef, ham, and devilled chicken, ham, and tongue. There is appended an analysis of the various products giving the names of the manufacturers and the list presents a somewhat sorry spectacle as regards the purity of the various preparations, although some are beyond cavil.

There can be no question of the very great value of this authoritative work in a matter in which the public is vitally interested. We have no doubt that the exposure of the frauds which have been practised will serve a useful purpose in stimulating the manufacturers to greater care in the future, and also in giving consumers the moral satisfaction of knowing precisely what they are eating. It is, perhaps, unfortunate that investigations of various sorts are from time to time needed, but this the frailty of human nature and the mercenary spirit in general, seems to demand.

INFANT MORTALITY.

With a view to encouraging still further efforts in the direction of saving infant mortality, especially during the summer months, the New York Association for Improving the Poor has had compiled from the records of the Health Department and made public a table giving the number of deaths, week by week, which have occurred among the children of the city under one year old, between one and two years, and between two and five years, during the eight weeks ending with the third week in July, in the years 1904, 1905, and 1906. In this period in 1904, the total deaths under five years of age numbered 1,898; in 1905, 2,066; and in 1906, 1,478. It is pointed out that from the mortality in 1905 it might have been anticipated, taking into account the accepted estimate of increased population, that the number of deaths this year would amount to at least 2,160. The comparatively small number, 1,478, is, therefore, very gratifying, and this decrease is attributed by the Association to the good work accomplished by the Health Department and the various fresh-air and other life-saving agencies, public and private. It must be remembered, however, that although last summer, as a whole, was cool, there occurred then a term of continued high temperature (lasting from July 8 till about the 20th) such as we have not had this year; and the weather is always a factor which very markedly influences, one way or the other, the summer mortality among infants and young children. The report contends that if the measures thus far employed are continued during the remainder of the summer season, the saving of lives should be increased to a gain of from 1,200 to 2,000 over last year's mortality figures. It then goes on to point out that to bury the children under five who would have died so far this summer, in the ordinary course of events, would have cost something in the neighborhood of $45,000, a sum twelve times the cost of the milk inspection system of the Health Department for an entire year. This statement, it must no doubt be understood, does not include the salaries of a number of additional inspectors which the Department has been enabled to appoint in consequence of a special appropriation which has only very recently been granted by the municipal authorities.

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MEDICAL NOTES.

Typhoid in Annapolis. — It is announced that several cases of typhoid have appeared among the students of the Naval Academy at Annapolis.

A Centenarian. — The death of Mrs. Ferdinand Reese at La Porte, Ind., is announced at the reputed age of one hundred and twelve years. From personal documents it appears that she was born in Volgravitz, Poland, in 1794. She came to this country in 1870. She attributed her long life to abstemious living.

The Death of Dr. Paul Brouardel. — The death of Dr. Paul Brouardel occurred at Paris, July 23, at the age of sixty-nine. Although advanced in years, Dr. Brouardel remained a physician of prominence and was much sought as a medical expert. For many years he was associated with the Department of Public Health, and in 1885 was made commander in the Legion of Honor.

Leprosy in New South Wales. — The following statistics from the Report of the Board of Health on Leprosy in New South Wales for the year 1905 are of interest: Distributed under nationalities, the account stands as follows: Natives of New South Wales, 27, of whom 18 have died and 3 were released; of Queensland, 1, deceased; of England, 6, of whom 4 have died;. of Ireland, 4, of whom 2 have died; of New Zealand, 1, deceased; of Fiji, 2, of whom 1 has died; of Germany, 2, deceased; of Belgium, 1, deceased; of the United States of America, 1; and all of these were whites, of European descent. There were also 43 natives of China, of whom 14 have died, and 29 have been returned to their own country; of India, 2, deceased; of the West Indies, 1, discharged in 1885; of Java, 1; of the Pacific Islands groups, 8, of whom 1 has died, and 1 has been returned to his island; of New Caledonia, 1, deceased; of Zanzibar, 1, sent with Chinese to Hongkong at his own desire; of Egypt, 1, repatriated; and all of these were colored people. The total number of persons admitted to the lazaret since 1883, when patients first began to be received (though the notification of leprosy was first made compulsory, and the detention of lepers provided for by law only towards the end of 1890) is 103.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Aug. 1, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 13, scarlatina 11, typhoid fever 15, measles 8, tuberculosis 33, smallpox 0.

The death-rate of the reported deaths for the week ending Aug. 1, 1906, was 19.66.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, July 28, 1906, was 211, against 248 the corresponding week of last year, showing a decrease of 37 deaths and making the death-rate for the week 18.27. Of this number 124 were males and 87 were females;

202 were white and 9 colored; 142 were born in the United States, 64 in foreign countries and 5 unknown; 39 were of American parentage, 134 of foreign parentage and 38 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 30 cases and 2 deaths; scarlatina, 9 cases and 1 death; typhoid fever, 14 cases and 4 deaths; measles, 9 cases and 0 deaths; tuberculosis, 42 cases and 18 deaths; smallpox, 1 case and no deaths. The deaths from pneumonia were 11, whooping cough 3, heart disease 19, bronchitis 0 and marasmus 4. There were 14 deaths from violent causes. The number of children who died under one year was 67; the number under five years 80. The number of persons who died over sixty years of age was 38. The deaths in public institutions were 72.

There was 1 case and 1 death reported from cerebrospinal meningitis reported during the week.

Growth of the Carney Hospital. — According to the recently published report of the Carney Hospital for 1905, the hospital is now the third largest in Boston. It has two hundred beds and spreads its charity over New England and the British Provinces. Upwards of 2,500 patients are treated in the wards yearly, and the hospital fills a need in caring for the chronic sick, as well as for those suffering from acute diseases. In the forty-four years of its existence it has progressed from treating 53 patients in 1863 to treating 2,235 patients in the wards, 55,000 patients in the out-patient department in 1905, and from requiring the services of five sisters in 1863 to 37 sisters and 43 nurses in 1905, while the active medical staff has been increased from 4 members in 1863 to 60 in 1905.

Meeting of Massachusetts Association of Board of Health. — The quarterly meeting of the Massachusetts Association of Boards of Health was held July 27 at Gallop's Island, Boston Harbor. Among the subjects discussed were the milk problem and the national pure food law and its possible and probable influence upon the food supply of Massachusetts. Dr. A. P. Norris, of Cambridge, read a paper on the milk problem in that city. Dr. J. L. Morse discussed the establishment of a milk commission for Boston under the auspices of the Suffolk District Medical Society. Dr. Charles Harrington, Secretary of the State Board of Health, was not able to be present at the meeting, and his paper on the national pure food law was read by Dr. G. B. Magrath. Dr. Harrington spoke approvingly of the new national law as likely to assist, rather than hinder, state boards of health in their work. A committee of four was appointed, consisting of Drs. H. P. Walcott, H. L. Chase, J. C. Coffin, and S. H. Durgin, to ascertain the status of tuberculous patients sent to hospitals by boards of health. The question has arisen whether such patients are thereby pauperized or are exempt from this social stigma. The question is evidently an important and far-reaching one; the committee will report later.

NEW YORK.

A Prolific Marriage. — Mr. and Mrs. Emanuel Lendergdaff, of Brooklyn, are being congratulated on the birth of their twenty-first child. This record is the more remarkable in view of the fact that there have been no twins or triplets. The latest addition to the family is a girl, making in all, eleven female and ten male children. Of the twenty-one children born, seventeen are living, constituting, it is said, the largest family in the greater city of New York. Last year the father and mother celebrated the twenty-fifth anniversary of their wedding.

Opening of Sanitarium for Hebrew Children. — The new building of the Sanitarium for Hebrew Children at Rockaway Park, on the Long Island seashore, was opened by Acting Mayor McGowan on July 23. Among the speakers was Dr. Samuel Kohn, the president of the sanitarium, who stated that the institution now has 400 beds, and that it was expected that between 25,000 and 30,000 children from the tenements would be taken to the seashore during the season. To care for the sick there are both a resident and a visiting staff of physicians. The sum of $1,600 in aid of the sanitarium was subscribed by those present at the ceremonies.

A Simian Patient. — There was a novel sort of patient at Bellevue the other day. A pet monkey on a big private yacht which when at New York anchors in the East River, near Twenty-sixth Street, got into trouble with the cook, and in consequence suffered a fracture of one of his forelegs. He was carried by members of the crew to the hospital, where he was taken to the amphitheatre, etherized, and a plaster-of-Paris dressing applied. When the patient recovered consciousness he is said to have been in a very emotional mood.

Prosecution of a Tattooer. — On July 26 Charles Wagner, who has long been known on the Bowery as the "King of Tattooers," was sentenced in the Court of Special Sessions to twenty days in the city prison for tattooing the arms of an eleven-year-old boy. The arrest and prosecution were at the instance of the Society for the Prevention of Cruelty to Children, which had received many complaints from parents whose children, ambitious to imitate the adornments of sailors and dime museum freaks, had submitted to Wagner's manipulations. He was prosecuted under the section of the code which makes it a criminal offense for an adult to endanger the health or life of a minor, and this is stated to be the first case of the kind which has been brought to trial.

Obituary.

GEORGE PECK, M.D.

Dr. George Peck, a retired medical director of the United States Navy, died at Lake Mohonk, Ulster County, N. Y., on July 26. He was born in Orange, N. Y., and was graduated from the College of Physicians and Surgeons, New York, in 1847. He was commissioned as an assistant surgeon in the Navy in 1851. While surgeon on the *Seminole* in 1861, he served during the attempted blockade by the Confederate batteries on the Potomac River, and later in the Civil War he was present at the capture of Port Royal, Fernandina, and Norfolk, and of the batteries at Sewell's Point. In 1888 he was placed on the retired list, with the rank of captain.

Miscellany.

THE BOSTON MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

Our contemporary, *Northwest Medicine*, comments in part as follows upon the recent meeting of the American Medical Association in Boston:

"The Boston meeting of the American Medical Association was a notable one in many ways. In point of attendance it was the largest in the history of the Association. The programs of the sections were of a high order. The great feature, however, which marked this meeting as a distinct advance over all its predecessors was the very large and carefully regulated exhibit of clinical work. Our medical schools in recent years have turned their attention, more than ever, to the importance of bedside teaching, utilizing as much as possible the practical and discarding many of the older didactic methods. Such seems to be the trend of our great Association, and it would be very difficult to arrange a more varied and beneficial program than was planned by our Boston brethren. Stress was not laid upon grandstand exhibitions in the operating theatre, although there was abundant opportunity to see a great variety of operations, but opportunity was given to visit the wards, the out-patient department, the mechanical appliance rooms, the laboratories for clinical work, thus bringing the visiting practitioner into direct contact with the every-day work of the leading physicians and surgeons in every line of work in Boston.

"Some complaint was made because the sections were not so well attended, and this was a very significant fact which shows that many of the visiting physicians reasoned that they could read what was said in the sections, or that portion which they desired, while they used their time to take advantage of the splendid clinical facilities afforded.

"If the object of the American Medical Association is to teach its members, its officers should seriously consider the question of holding the meetings in large cities, thus reaping the advantages of clinical facilities, and to present this material in the best possible manner and without ostentation we cannot do better than to follow the precedent established by our Boston colleagues."

THE ACCIDENT TO THE PLYMOUTH (ENGLAND) BOAT EXPRESS.

The inquest on the bodies of those persons who lost their lives in the accident to the Plymouth boat express on July 1 was concluded at Salisbury by the city coroner, Mr. Buchanan Smith, on July 16. Evidence was given that the train which, according to the London and South Western Railway Company's regulations, should have travelled round the curve near Salisbury station at a speed not exceeding 30 miles an hour, actually did so at a speed of from 60 to 70 miles per hour. The jury returned a verdict to the effect that the deceased lost their lives owing to the derailment of the train, that the derailment was caused by the excessive speed at which the train was travelling, and that this was contrary to the company's regulations. They added a rider to the effect that every driver of a train not stopping at Salisbury ought to have his attention specially called before starting to the regulations affecting his journey, and that this was not done in this case. The coroner said that the recommendation of the jury would be forwarded to the Board of Trade. Quickness of intercommunication is, no doubt, a desirable thing, but it can be purchased at too high a cost. British railways are, it must be admitted, singularly free from accidents to trains, but in many instances it is the public who are primarily to blame for delays and the possibilities of accident. In many of the companies serving the suburbs the amount of traffic has increased to a much greater extent than the roadways are really able to bear. Hence an increased number of trains, most of which are unpunctual, and unpunctuality always means the possibility of accident. Yet the public demand frequent trains and grumble if these are not provided. We may add that it is the same desire for rapidity of intercommunication which has made London streets an experimental ground for machines which are absolutely unfitted for the purposes to which they are daily applied. — *Lancet.*

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BRITISH MEDICAL ASSOCIATION.

The seventy-fourth annual meeting of the British Medical Association is to be held in Toronto, Canada, from Aug. 21–25. There will be thirteen sections holding sessions on four days, in the mornings only. It is specified that no paper shall exceed fifteen minutes in length and that individual discussion shall not exceed ten minutes. Those offering papers should send them to the Honorary Secretary of the section under which the paper falls, accompanied by a short abstract, in order that such abstract may be printed and circulated before the meeting. In looking over the preliminary program accompanying the issue of the *British Medical Journal* for July 21, we notice a large number of papers from men in the United States. Invitations were sent out to a certain number of physicians asking their coöperation in the meetings, and this has apparently met with a somewhat generous response. It is hardly to be expected that the association will this year be attended by anything like so many members as when the meeting is held at home, but it will serve a useful purpose in bringing together the leaders of medicine of two countries as could not be accomplished otherwise. Even if fewer papers than usual are offered, the meetings will presumably not suffer thereby. The danger at such meetings lies in too many rather than in too few communications.

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Correspondence.

CHANGE IN LAW REGARDING COMMITMENT OF THE INSANE.

July 31, 1906.

Mr. Editor: I wish to call the attention of the medical profession of Massachusetts, through the columns of your Journal to the recent slight change in the law applying to the medical certificates in the commitment of the insane.

Formerly the Massachusetts law required the physicians to take oath to their statement before the judge committing the patient. The law was recently amended so that the physicians are merely required to make oath to their statement. This may be done before any one qualified to take an oath. This modification is of especial benefit to the physicians outside the large cities, who heretofore have found it at times very difficult to arrange to be present at the hearing before the judge qualified to commit the patient.

Now the physicians, if they have taken the precaution to have supplied themselves with the proper blanks by applying to the State Board of Insanity for them, may take oath to their certificate before a Justice of the Peace, and then give this to the applicant, who takes it with him to the judge, before whom he makes oath to his application.

Respectfully yours,

Edward B. Lane.

RECORD OF MORTALITY

For the Week ending Saturday, July 28, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,600	723	Quincy	6	2
Chicago	517	195	Waltham	10	—
Philadelphia	—	—	Gloucester	5	1
St. Louis	—	—	Pittsfield	3	—
Baltimore	246	97	Brookline	7	1
Cleveland	—	—	North Adams	4	—
Buffalo	—	—	Chicopee	10	7
Pittsburg	—	—	Northampton	4	1
Cincinnati	—	—	Medford	6	—
Milwaukee	—	—	Beverly	8	—
Washington	—	—	Hyde Park	3	1
Providence	91	42	Newburyport	4	—
Boston	219	77	Leominster	5	1
Worcester	33	11	Melrose	—	—
Fall River	51	32	Woburn	6	2
Cambridge	22	11	Marlborough	5	1
Lowell	33	23	Westfield	3	—
Lynn	26	8	Peabody	—	—
New Bedford	32	20	Revere	3	1
Springfield	25	8	Clinton	1	—
Lawrence	34	24	Attleboro	5	2
Somerville	13	3	Adams	5	—
Holyoke	23	9	Gardner	—	—
Brockton	8	4	Milford	2	—
Malden	7	—	Weymouth	3	—
Salem	16	6	Framingham	3	1
Chelsea	9	6	Watertown	2	—
Haverhill	16	3	Plymouth	—	—
Newton	5	1	Southbridge	2	2
Fitchburg	9	6	Wakefield	2	—
Taunton	15	4	Webster	—	—
Everett	7	2			

RECENT DEATHS.

Dr. Thomas Brennan, of New York, died on July 22. He was a graduate of the medical department of the University of the City of New York in the year 1877.

BOOKS AND PAMPHLETS RECEIVED.

Blakiston's Quiz-Compends. A Compend of Materia Medica Therapeutics and Prescription Writing with Especial Reference to the Physiological Action of Drugs. By Samuel O. L. Potter, M.D., M.R.C.P. London. Seventh edition, Revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1906.

Report of the Commissioner of Education for the Year ending June 30, 1904, Vol. I. Washington. 1906.

Legal Prevention of the Use of Poison in the Embalming Fluid by Undertakers or Others. By Clark Bell, Esq., LL.D. Reprint.

Bacteriological Types of Acute Conjunctivitis. By Alexander Duane, M.D., and F. W. Hastings, M.D. Reprint.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D. Vol. II. Sixteenth Series, 1906. Illustrated. Philadelphia and London: J. B. Lippincott Co.

A Text Book on Prescription Writing and Pharmacy. By Bernard Fantus, M.D. Second edition, thoroughly revised. Chicago: Chicago Medical Book Co. 1906.

A Cook Book for Nurses. By Sarah C. Hill. Boston: Whitcomb & Barrows. 1906.

Essentials of Prescription Writing. By Bernard Fantus, M.D. Chicago: Chicago Medical Book Co. 1906.

Clinical Bacteriology and Hematology for Practitioners. By W. D'Este Emery, M.D., B. Sc. London. Being the Second Edition of "A Handbook of Bacteriological Diagnosis for Practitioners." Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

Original Articles.

STOKES-ADAMS DISEASE, WITH REPORT OF THREE CASES.*

BY WALTER R. STEINER, M.D., HARTFORD, CONN.,
Assistant Visiting Physician, Hartford Hospital.

Stokes-Adams disease is an affection which presents clinically the following features: (1) A slow pulse, usually permanent, but sometimes paroxysmal, falling to 40, 20 or even 6 per minute; (2) cerebral attacks which consist in vertigo of transient character, syncope, pseudo-apoplectiform attacks or epileptiform seizures; and (3) visible auricular impulses in the veins of the neck, the beats varying greatly, a 2: 1 or 3: 1 rhythm being the most common (Osler).

The malady has had an interesting history since Adams[1] first described his case in 1827. Stokes'[2] contribution did not appear until 1846, but it was decidedly more important than Adams', as in his first patient he not only noted the two symptoms previously recorded by Adams, but also a remarkable pulsation in the right jugular vein. This has since been added as the third cardinal or final distinguishing symptom. Unfortunately its importance was not at first recognized. Recently, interest has been again revived in this condition by the excellent work of Erlanger, of Baltimore, although previously, subsequent to Huchard's naming and description of the disease, His, Jr.,[3] Hoffmann,[4] Jaquet[5] and Luce[6] had published excellent papers upon it in Germany, Jaquet giving abstracts of the previously reported cases. This had also been done in America by Prentiss[7] and Edes,[8] and by Webster[9] in England. Dr. Osler's contributions[10] have been important in extending the knowledge of the affection, as well as Babcock's excellent account of it in his textbook on the diseases of the heart.

Etiology and Pathology. — The early cases were all observed in elderly individuals who presented signs of vascular or cardiac disease. Some of the more recent cases have occurred in patients much younger, but the malady is still most commonly seen in persons beyond middle life. Jaquet found 15 cases in the literature, under forty years of age and 9 below thirty years of age. In Quinan's analysis of 25 cases 76% were over fifty, while in Dr. Osler's series of 12 cases 3 were above seventy-six years of age and 6 between fifty and seventy years of age.

Males are more frequently affected than females by a ratio of 3: 1 (Quinan). Syphilis and myocardial changes appear to be contributing factors, especially the former in the group of younger patients. Alcohol and hard work, favoring the onset of arterial sclerosis, should also be here mentioned. In two cases traumatism appeared to have played a part. By the work of His, Jr., Humblet, Hering and Erlanger the affection appears to be identical with experimental heart block, and three cases have since exhibited pathological lesions which bear out the correctness of their views.

Two theories exist as to the transmission of the impulses which cause the various chambers of the heart to beat. The first, or neurogenic theory, asserts it is through the nervous system, while the second view maintains it is through the muscular tissue of the heart. The present trend of opinion supports the latter theory, which is the more recent. The stimuli, accordingly, which excite the heart to beat, cause a contraction first in the musculature of the large venous openings in the auricles. The impulses are thence transmitted forward, in the form of a peristaltic wave of contraction, first over the auricles and then over the ventricles, the conduction from the auricles to the ventricles being through a narrow band of muscle. This was first found in mammals by William His, Jr., about 1895, and his findings have since been frequently confirmed by other investigators. The muscle, according to Retzer, "runs posteriorly in the septum of the ventricles about 10 mm. below the posterior aortic leaflet of the aortic semi-lunar valves; with a gentle curve it passes posteriorly just over the upper edge of the muscular septum and sends its fibers into the musculature of the right auricle and of the auricular valves. In the heart of the adult the bundle is 18 mm. long, 2.5 mm. wide and 1.5 mm. thick."[11] When the conduction of an impulse through this muscle is interfered with, auricular contractions may occur independently of those of ventricular origin. Ordinarily, of course, the auricles and the ventricles beat with the same rate, but, when the transfer of impulses through this muscle of His is obstructed, the auricles may contract twice, thrice, four times or even more before a ventricular contraction is observed. Hence a very slow pulse may be noted at the wrist, as the pulse here is the index of the frequency of the ventricular contractions. If there is a complete obstacle to the passage of all impulses through His' muscle the auricles and the ventricles will then beat absolutely independently of each other and the condition of complete heart block will be seen. We may define this as atrio-ventricular allorhythmia or independent auricular beats without corresponding ventricular contractions. The heart block is partial when some of the impulses pass through the auriculo-ventricular bundle of His and cause contractions of the ventricles at different regular intervals.

In 1904 Erlanger[12] studied a case of Stokes-Adams disease at the Johns Hopkins Hospital and showed by tracings from the heart, the brachial artery and the jugular vein that the affection was identical with the condition known as heart block. For in his patient the cardiogram, the jugular and brachial sphygmograms all presented evidences of auricular as well as ventricular contractions. In some of the tracings there was no relation between the contractions of the auricles and ventricles. Hence, complete heart block existed, but in others the ventricular systoles had a definite relation with those of auricular origin, although they were not as numerous. Subsequently, Erlanger produced this condition experimentally in warm-blooded animals, whereas, previously, it could only be so caused by completely destroying the connection between the auricles and the ventricles. He showed that the impulse, which is transmitted from the auricles to the ventricles, could be blocked by a specially devised clamp which compressed the tissue in the region of the auriculo-ventricular bundle of His. This clamp he introduced behind the posterior aortic leaflet and pushed the point of it through the interventricular septum. By thumb screws he varied the amount of compression and produced by partial and total constriction all stages of heart block, obtaining first an increase in the intersystolic pause, then an intermittency in the ventricular contractions by more marked compression. Finally, complete constriction caused the auricular and ventricular contractions to occur independently of each other. When the block was complete, the ventricles did not react when the vagi were stimulated but the accelerator nerves caused a response to their own stimuli. In partial block the vagus when stimulated acted on the ventricles, but the duration of the ventricular inhibition seemed to vary inversely as the degree of block, when the vagi were stimulated with maximum tetanizing currents.

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* Read before the Hartford County Medical Association, April 3, 1906

[1] Dublin Hosp. Rep., 1827, iv, 396.

[2] Dublin Quart. Jour. Med. Sc., 1846, ii, 73.

[3] Deutsches Archiv. f. klin. Med., 1899, lxiv, 316.

[4] Zeit f. klin. Med., 1900, xli, 357.

[5] Deutsches Archiv. f. klin. Med., 1902, lxxii, 77.

[6] *Ibid.*, 1902, lxxiv, 370.

[7] Tr. Ass. Am. Physicians, 1889, iv, 120.

[8] *Ibid.*, 1901, xvi, 521.

[9] Glasgow Hosp. Rep., 1900, iii, 413.

[10] Lancet, 1903, ii, 516.

[11] Erlanger, *op. cit.*

[12] The Journ. of Exp. Med., 1905, vii, 676.

In a subsequent paper Erlanger studied with Hirschfelder [13] the phenomenon of the stoppage of the ventricles. Previously, he had observed the ventricles to beat very slowly or practically to stop at the onset of complete heart block. He concluded from a study of twenty-one additional experiments that, at the onset of complete heart block, the ventricles occasionally stop beating because the normal stimuli fail to reach them from the auricles through the muscle of His. The ventricles, however, as Stannius first showed in 1852, possess an inherent rhythmicity, hitherto dormant, as the auricles have set the pace which the ventricles have slavishly followed. When now the stimuli from the auricles can no longer reach the ventricles, time is required for the ventricles' dormant inherent rhythm to acquire its maximum efficiency. Consequently, the ventricles at first beat slowly but gradually increase in their frequency of contraction until a constant and comparatively slow rate is attained. This is known as the rhythm of development. The duration of the stoppage of the ventricles lasted in Erlanger's experiments from a few seconds to almost a minute.

Since these careful researches of Erlanger were published Stengel,[14] Schmorl,[15] and Jellick, Cooper and Ophuls [16] have reported cases of Stokes-Adams disease which exhibited at autopsy an involvement of the muscle of His. Stengel's case showed an atheromatous patch on the anterior mitral leaflet, towards its base and aortic edge. It extended to the endocardium exactly over the middle portion of the bundle of His, where this band or muscle passes from the ventricle to the auricle. By removing the endocardium the bundle of His was found involved in the area of the disease. A fuller pathological report on this case will appear later. Schmorl's case revealed a scar formation in and around the bundle of His, just below the membranous septum, which was microscopically detected.

More recently Jellick, Cooper and Ophuls have recorded a case of acute epididymitis, probably gonorrhoeal in origin, which developed symptoms of septicemia in the course of which the Stokes-Adams syndrome appeared fourteen days before death. At the autopsy the heart showed " anemic necrosis of the muscular septum in the region of the bundle of His, consequent on a recent thrombosis of its nutrient arteries." In Sendler's [17] case a cartilaginous mural tumor, the size of a walnut, probably caused heart block by being so situated as to compress the muscle of His.

Symptoms: A slow pulse has been met with in many conditions, but it is not accompanied by the other cardinal distinguishing symptoms, which are only seen as a symptom-complex in this disease. The pulse is usually regular and exhibits apparently high tension, although as Erlanger has shown the mean blood pressure is higher when the heart beat is normal in this condition than when complete heart block exists. In Holberton's case the pulse ran as low as five per minute.

The cerebral attacks may occur at most varying intervals in the disease. As a rule, they are not daily noted but occasionally many attacks may be observed in one day, as in Babcock's patient, who had at one time spells of vertigo as often as every five minutes for an hour or more. They seemed to Erlanger to be less frequent as the disease progressed. He thought, consequently, that they might bear some relation to an action of the auricles on the ventricles. He also inferred this from the fact that in one of his cases the attacks were most frequent and severe when a marked improvement was detected in the conductivity of the bundle of His. Mackenzie's case seems to give added confirmation to these views. The vertigo and syncope seem to be dependent upon the reduction in the rate of the ventricular contractions, as well as upon a stoppage of the ventricles, noted occasionally at the onset of complete block. The former, however, appeared to Erlanger to be the more frequent cause of the attacks of this nature. In Kidd's case there were intervals of forty and ninety minutes in which no pulse was detected at the wrist, and in Stengel's case this interval equaled, on one occasion, two minutes and ten seconds. The apoplectiform attacks Erlanger likewise explains. He considers them to be probably due to venous congestion, while the epileptiform seizures result from an anemia of the brain, due to an insufficient blood supply in this region.

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[13] Am. Jour. of Physiology, 1906, xv, 153.
[14] Am. Journ. Med. Sc., 1905, cxxx, 1083.
[15] Journ. Am. Med. Ass., 1906, xlvi, 361.
[16] Journ. Am. Med. Ass, 1906, xlvi, 955.
[17] Centralbl. f. klin. Med., 1892, xiii, 642.

At the heart interposed beats may be heard which Jaquet, Babcock and others have wrongly interpreted as contractions of the ventricles. They represent really auricular systoles, as Erlanger has well shown, and may be perceived as transmitted venous pulsations in the veins of the neck. The diagnosis of this condition should present no difficulty if the three cardinal symptoms be kept well in mind. The prognosis is always grave, yet need not be immediately fatal, but when death does occur it is most apt to be sudden. One of Dr. Osler's patients had a slow pulse for thirty years. There is no specific treatment. In the younger patients, where a syphilitic taint may be present, the iodide of potassium should be employed. Its use has apparently cured a number of cases.

I have seen, during the last three years, three cases of Stokes-Adams disease. Consequently, a partial rehearsal of the histories of these patients may be of some interest.

Case I. *Syncopal attacks recurring in the same month, at intervals of a year and more; slow pulse; venous pulsations in the neck; arterio-sclerosis; cardiac hypertrophy; gradual improvement during the further course of the disease.*

C. H. S., aged seventy-seven years, a retired business man, was first seen by me in the summer of 1903 while his physician, Dr. Porter, was in Europe on a vacation. His family and past history were negative. Five years previously, while walking along one of Hartford's principal business streets, he suddenly became faint and was obliged to sit down on the curbstone. He says he did not exactly lose consciousness, but felt dizzy for a time. The exact duration of this attack, however, he does not know. It could not have been more than three to four minutes. Since then his pulse, which previously was 75 to the minute, has fallen to 40. At times early in the disease it has returned to its former rate, but on each of these occasions he has felt very uncomfortable and complained of a fullness in the head. One year later in the same month he had a number of similar attacks while confined to his house. They each lasted about half a minute, and during them his wife says he seemed to be completely unconscious. Occasionally they would occur as often as two or three times a day. At this time he was kept in bed for three weeks and had a trained nurse in attendance. Since then he has been able to be up and about and attend to some business. He easily gets fatigued and has, consequently, been obliged to take things very slowly and deliberately. During the two months he was under my care his pulse ranged from 38–44 to the minute; occasionally it was a trifle irregular. There was moderate sclerosis of the vessel wall. Upon examination, he was a very well nourished, well developed man. His lips and mucous membranes were of good color, but his tongue was coated with a thick, white fur. No venous pulsations in the neck were noted then, but I regret I did not look for them very closely. The thorax was symmetrical; the expansion was good and equal on both sides. A few coarse, moist râles were heard at both bases of the lungs. The heart's impulse was not visible or palpable, but by stethoscope it was found to be on the V interspace, just outside the nipple line. Percussion showed, also, a slight enlargement of the heart. At the apex a soft, systolic murmur was audible, which was transmitted outwards towards the axilla and was heard with decreasing intensity on passing upwards and inwards. It was audible, however, at both aortic and pulmonic areas. No thrill was felt. The liver extended one finger's breath below the costal margin in the mammary line. The abdomen was negative. There was no edema of the lower extremities.

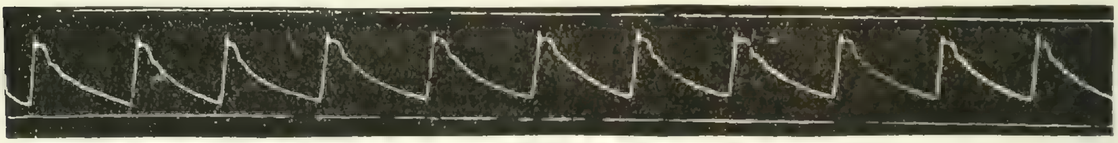
The patient during the further progress of the disease has improved very much. Other than a few attacks of bronchitis, which have kept him housed for a few days, he has remained very well. There had been no recurrence of the syncopal attacks until Jan. 20, 1906, when he had a "gone feeling," which lasted about a minute, while he was seated in his office. He does not think he completely lost consciousness. The next morning at 8 A.M. he had a similar attack at his house. I saw the patient March 30, when I went to his residence to get a tracing of his radial pulse. His pulse then was 40 to the minute, and visible venous pulsations were noted in the anterior jugular veins. They numbered 80 to the minute (a 2:1 rhythm). The cardiac hypertrophy had not increased, but the systolic murmur at the apex had become much harsher. Occasionally at the base I could make out some intermediate sounds, but no intermediate beats could be seen or felt. Some days later his blood pressure was taken at the brachial artery by the Janeway apparatus. It showed a systolic pressure of 190 mm. and a diastolic pressure of 140 mm., giving a pulse pressure of 50 m.m. The urine examinations have been uniformly negative.

Case II. *One epileptiform seizure and one syncopal attack at the apparent onset of the disease; slow pulse; no venous pulsations in the veins of the neck noted; slight arterio-sclerosis; cardiac hypertrophy; brief sojourn at Nauheim with no improvement; sudden death, about two years after apparent onset of the disease.*

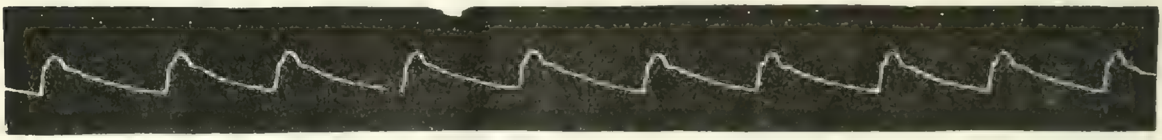
E. W. T., aged fifty-three years, a druggist of New Britain, and a patient of Dr. E. P. Swasey's, was first seen by me on Aug. 17, 1903, when Dr. Swasey asked me to make a blood examination. The history of this case has been carefully detailed by Dr. Swasey in the Transactions of the Connecticut Medical Society for 1904, so it need only be briefly mentioned here. The patient's family history on his father's side was negative. On his mother's side an uncle had died of "chronic heart disease," and an aunt of fatty degeneration of the heart. The patient had always been remarkably healthy. He smoked moderately, was very abstemious in regard to liquor, and denied venereal disease. He had always lived a very sedentary life. In fact, his only recreation consisted in a yearly vacation of from two to three weeks, which he spent in the Maine woods. Ten years previous to my visit he had received a sudden shock which may have had some etiological import. At this time, while caught out in a heavy thunder storm, he saw a bolt of lightning strike a tree opposite his house, when he was only a few hundred feet away. His wife states that it was about an hour after he reached home before he rallied from this shock. Eight days before I saw him he was attacked early one morning with an epileptiform seizure, which his wife witnessed. She thought his actions then were due to a nightmare and raised his head, vainly endeavoring to arouse him. As she did so, his head was jerked first backwards and then forwards. It was accompanied by a twitching of the facial muscles. He finally recovered consciousness and said he had been lying awake when he suddenly "lost himself." After this attack he arose and breakfasted. He was able to be up and about during the day, but complained of feeling cold. He did not know the exact duration of the attack. Two days thereafter, about ten o'clock in the morning, he suddenly fell to the floor, when standing at the desk in his store at work on some books. The attack was only of a few seconds' duration, but he felt so faint and wretched after it that he went home in a carriage. Not long after his arrival Dr. Swasey found him with a pulse of only 22 to the minute. It was of good volume and regular in force and rhythm. On my examination, six days later, I found the patient to be a well built, well nourished man; the lips and mucous membranes were of good color; the tongue was clean and protruded in the mid-line. No pulsations were noted in the vessels of the neck. The thorax was symmetrical and the expansion was good and equal on both sides. The lungs were negative on examination, but the heart appeared to be enlarged to the left, on percussion, extending to the nipple line. The cardiac impulse was neither seen nor felt. At apex a soft systolic murmur was heard, following the first sound. It was not transmitted outwards, but was heard on passing upwards and inwards, though with decreasing intensity. The aortic second was not accentuated. The pulse was 25 to the minute, regular in force and rhythm, and of fair volume. The tension was somewhat increased and there was slight sclerosis of the vessel wall. The abdominal examination was negative. There was no edema of the extremities. The urine examinations were negative. The hemoglobin (Dare) was 78%; the red blood corpuscles equaled 4,624,000, the white blood corpuscles 4,500. A differential count of 515 leucocytes showed:

Polymorpho-nuclears,	70.68%
Small mononuclears,	23.30%
Large mononuclears and transitionals,	4.47%
Eosinophiles,	1.55%
	100%

The stained specimen of blood showed that the red blood corpuscles stained well. There was no polychromatophilia and no nucleated red cells were seen. The red blood corpuscles showed also no variation in size or shape.



Radial Pulse of Case I, Stokes-Adams Disease. Rate 40 to the minute.



Radial Pulse of Case III, Stokes-Adams Disease. Rate 39 to the minute.

The patient was also seen by Drs. McKnight and Porter, of Hartford, Dr. Satterthwaite of New York, and Dr. Edes of Boston. After a stay of three weeks in bed, he resumed his work. In March, 1904, he went to Nauheim and took a two months' course of treatment there, with slight apparent benefit. In June of the year following he started for his annual vacation in the Maine woods, intending to make short stops at Boston and Portland. In the latter place, after a hearty meal, he went to his room in the hotel, just before making his departure. On lifting his grip he complained of a dizzy sensation in his head, which obliged him to sit down for a few minutes. He soon was able to get up and go to the elevator, where he shortly thereafter suddenly expired. During the course of the disease, his pulse ranged from 37–19 to the minute. Its most constant rate was 28.

CASE III. *Syncopal attacks; slow pulse; venous pulsations in the veins of the neck; cardiac hypertrophy.*

M. L. J., aged fifty-one years, was first seen by me through the kindness of her physician, Dr. Charles C. Beach, in April, 1905. Her family history was negative. She had had diphtheria in childhood. Fifteen years ago she had some mild attacks of what she calls rheumatism in her elbow joints, and indefinite pains in her neck, supposed to have been neuralgia. Has suffered occasionally from mild gastro-intestinal disturbances. Twenty years ago she complained of mild, dizzy sensations on rising up suddenly or lying down. They were only of momentary duration. In November, 1904, when consulting a physician for indigestion, she learned for the first time that her pulse was about 40 to the minute. Two months later, while returning to Hartford from a hurried shopping trip in New York, she almost fainted on her way to the train. In April, 1905, she had an attack of syncope which lasted several minutes. Dr. Beach arrived shortly thereafter and found her pulse was 36 to the minute (two days previously, at his first visit, it was 46 to the minute). Every few minutes, at his second visit, her pulse would rise to 46 and during this acceleration she would make frequent complaints of dizziness, though her head was in a reclining position. Finally, the pulse became 41 to the minute. The hemoglobin (Dare) was 88%; the red blood corpuscles, 4,041,000; the white blood corpuscles, 9,200.

When I saw her, a few days later, I found her to be a sparely nourished, fairly well built woman. Her lips and mucous membranes were a trifle pale, the tongue was clean. I detected no pulsation in the veins of the neck. The lungs were negative on examination. The heart's impulse was not visible or palpable, but by stethoscope the sounds were best heard 9.5 cm. from the mid-sternal line. This slight enlargement was confirmed by percussion, but no enlargement to the right could be made out. At the apex a harsh blowing systolic murmur was heard, which was transmitted outwards as far as the anterior axillary line, and was audible with much greater intensity on passing upwards and inwards, being loudest in the third left interspace near the sternum. No accentuation of the aortic second was detected. The pulse was 46 to the minute, regular in force and rhythm, of good volume and tension. No sclerosis of the vessel wall was made out. There was no edema of the extremities.

On Dec. 23, 1905, while at the railroad station, in line to purchase a ticket for New York, she suddenly felt as if something had hit her on the forehead with a piece of steel. Then, while leaning over a bench nearby, she experienced a queer, quivering sensation, as if everything was giving away, coming from the veins of her legs up, and suddenly she became unconscious. Does not know how long this attack lasted. A week later she had a dizzy feeling which induced her to go to bed, and again she lost consciousness. At this time she had no warning and the attack lasted from two to three minutes. On recovery she complained of general numbness. Shortly before this attack she was seen by Dr. E. G. Janeway, who concurred in the diagnosis of Stokes-Adams disease. Efforts were made at this time to get a cardiagram and a jugular and brachial sphygmogram, but with only partial success. Pulsations, however, were observed in the external jugular vein, which equaled 115 to the minute, while the radial pulse varied from 46–48. The maximum arterial pressure was 150 mm., the minimum 95 mm. On March 17 I endeavored to get similar pulse tracings at the Trinity College Psychological Laboratory, with the kind assistance of Professor Urban and Dr. Swan, but met with similar results. Three days prior to this, however, I was able to detect 80 visible, venous pulsations in the right external jugular vein, while the beats at the heart and wrist registered only 39 (2:1 rhythm). On April 2, when her pulse rate was 39 to the minute, I made the following radial tracing. Her urine examinations have been negative throughout the course of the disease.

INTRODUCTION TO THE STUDY OF THE FUNDAMENTAL CAUSE OF SPLANCHNOPTOSIS — ABDOMINAL INCOMPETENCE: A DEVELOPMENTAL FACTOR.*

BY AGNES C. VIETOR, M.D., BOSTON.

PRESENTATION.

In 1892, while teaching physical diagnosis at the Woman's Medical College of the New York Infirmary, the writer demonstrated to her students several cases of girls and women who had never worn corsets nor sufficiently constricting clothing, and who yet presented what has been called the corset figure retraction of the lower thorax, with more or less marked lumbo-sacro-thoracic anterior convexity.

Directing her attention to this point, an increasing number of such patients continued to come under observation. These patients grouped themselves into three sub-classes: (1) Girls and women who had absolutely never worn corsets or sufficiently constricting clothing; (2) girls and women who, while wearing corsets or other constricting clothing, yet did not wear these garments, and had never worn them, sufficiently tight to make it appear reasonable that such garments could produce such marked anatomical changes; (3) girls and women wearing definitely constricting clothing.

Gradually, it appeared evident that all girls and women could be classified as conforming to one or the other of two types, which types appeared to develop spontaneously and in accordance with natural laws.

These types may be called as to the lower thorax "broad" or "retracted"; though it will be shown later that they can be also classified according to the spinal column.

The writer next observed that while a large number of girls and women with retracted lower thorax presented a displacement of one or more of the abdominal viscera, yet apparently an equally large number of abdominal visceral displacements occurred in patients who had the broad lower thorax. These visceral displacements seemed sometimes to be most easily demonstrable in the retracted thorax class; and this at first made it appear as if they were more frequent in this class. Further study showed that many of them are as frequent in the broad thorax class, but that they occur along somewhat different lines, and at times require somewhat different methods for demonstration.

In endeavoring to discover the time of onset and original course of these changes, they were found already begun in childhood.

In the study of children, these changes were found to develop spontaneously in boys as well as in girls, but at first they seemed to be a transient phase in boys, tending to disappear towards puberty, while tending to persist in girls.

Extending the field of her observations, the writer next noted that the transiency of these changes in boys was not uniform; that they persisted in many boys beyond the age of puberty, and, further, that they existed in many men.

Eventually, it became evident that boys and men grouped themselves under the same two types as girls and women, *i. e.*, the broad and the retracted lower thorax types.

As the study of these cases proceeded, the problem developed complications in many directions. The spinal column, the pelvis, the lower extremities, and even the upper extremities and head, all seemed to be contributing factors that could not be eliminated.

By slow degrees during the ensuing years the clinical observations made appeared to correlate themselves along certain lines, but the practical difficulties in studying these correlations were for a long time insurmountable.

A series of clinical studies culminating in 1900–01 in that of Case LX, showed that of the two types, one, the broad lower thorax, is basic and physiological; while the other, the retracted lower thorax, is secondary and tends toward the pathological. This case not only gave the key to the path followed in the spontaneous evolution of the retracted from the broad lower thorax, but it also gave the key to the later evolution of the abdomen. This case seemed to show that the evolution of the abdomen and lumbo-sacral spine was especially correlated with the evolution of the lower extremities, and, though to a less extent, also with that of the upper extremity. This was followed by the clinical demonstration that the evolution of the thoracic cage depends largely on the evolution of the abdomen. At the same time, evolution of the abdomen was observed largely to modify and determine the mechanics of respiration.

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* Read before the Section in Surgery of the Fifteenth International Medical Congress, at Lisbon, April 20, 1906.

In 1901–02, the writer was able to go to Europe, to have access to many of the originals of the historical records of the race, as expressed in mural drawings, sculpture and painting. She studied the records of older Asia, of Egypt, of Greece, of Rome, of medieval Europe, of more modern Asia, and of modern and contemporary civilizations, as found in the museums and art galleries of Paris, Dresden, Leipzig, Berlin, Holland, Belgium and London. The intervention of a serious illness prevented her visiting the south of Europe, and compelled her to return home.

The study of these records showed that her clinical observations and deductions were correct, and, further, that the two types of development which she finds existing to-day are the two main types along which the race has been developing since the date of the earliest records she has yet found. Further, at the *Musée d'Anthropologie*, at the *Jardin des Plantes*, in Paris, she found photographs and other records of contemporary peoples of more primitive civilization, showing development along the same two main lines. Through the courtesy of Professor Halmy, she is able to show copies of some of the photographs of these peoples.

In 1903–04, through the granting of a fellowship by the Medical Board of the Hospital of the Society of the Lying-In, in New York, she was able to study in the newborn the anatomical paths predisposing to the evolution of these types. To some extent, she was also able to follow these paths backward in the fetus. At the same time she was able to begin the study of the postnatal evolution of the abdomen in the young infant, and to study some of the modifications presented in the pregnant woman.

In 1904, through the courtesy of Prof. Emmet L. Holt, she was able to make some studies of the young child at the New York Foundling Hospital.

SUMMARY.

(*a*) RÉSUMÉ.

General argument leading to conclusion that question is one of evolution.

Outline of evolution of human abdomen.

A — Prenatal

A′ — Status at term.

B — Postnatal.

Study of evolution of human abdomen leads back to earlier vertebrate series and forward to postnatal development.

Outline of evolution of vertebrate abdomen, including man, showing continuity and correlations.

Outline of evolution of specific human abdomen. Correlated with evolution of spine, pelvis, thorax and extremities; especially with extension, adduction and forward rotation of the lower extremities, so that the patella and toes point forward. Effects of abdominal incompetence on the mechanics of respiration. Anatomical and physiological variations predisposing some of the viscera to displacement, and relation of this predisposition to certain frequent pathological conditions. Spontaneous tendencies of the trunk and extremities towards such structural variations as are called pathological (*developmental deformities*). These developmental deformities include round shoulders, lateral and antero-posterior curvatures of the spine, modifications of weak foot, including *pes planus;* retracted lower thorax; marked lumbar or lumbo-thoracic anterior convexity; marked forward rotation of the pelvis; abdominal incompetence; and visceral ptosis — *en masse* and *individual*.

Evolution towards two main types of human figures, depending upon variations in these correlations.

Type 1. Broad lower thorax; slight lumbosacral anterior convexity; slight forward rotation of pelvis.

Type 2. Retracted lower thorax; marked lumbo-sacral anterior convexity; marked forward rotation of pelvis. (This type must be considered pathological — a variety of developmental deformity.)

Correlations towards which each type tends: In abdomen, thorax, lower extremities, respiratory mechanics, and specialized activities.

(*b*) MAIN LINES OF ARGUMENT.

General argument leading to conclusion that question is one of evolution.

In their highest development, the abdominal walls not only contain the abdominal viscera, but also retain them in position against gravity and other opposing forces.

The abdomen may then be said to be competent.

A failure in the retaining power of the abdominal walls leads to visceral displacement as a result of the action of gravity and other displacing factors.

Such an abdomen may be said to be incompetent.

An incompetent abdominal wall is largely compensated for in the supine position, for then it is not called upon to share in the support of the viscera and the rest of the trunk; gravity in this position causes the viscera to rest on the back, which, in turn, rests upon the bed or other supporting surface. As soon as the sitting or standing position (or even the lateral supine), is assumed, an incompetent abdominal wall yields to gravity and other displacing factors and it becomes displaced.

Given a cavity which contains no free space, and whose contents are movable; whenever the walls of the cavity are displaced, in whole or in part, its contents are displaced, in whole or in part.

Hence, incompetence of the abdominal wall always leads to some displacement of one or more of the abdominal viscera; and, in itself, is sufficient to cause all stages of visceral ptosis, up to the complete dislocation of all the abdominal viscera.

(Illustrations of this law as manifested in areas of partial incompetence (active or potential) of the abdominal walls — both physiological and pathological.)

The viscera retain their " normal " positions as the result of an equilibrium between gravity and other displacing factors, on the one side, and certain counterbalancing forces on the other side.

The essential factors in visceral displacement are gravity and altered respiratory equilibrium, including unantagonized downward and forward excursion of the diaphragm and lungs in inspiration.

Unsupported abdominal viscera tend to travel downward, forward and towards the median line. After traveling in this direction for a certain distance, the hollow viscera tend to travel also upward and forward, this latter movement being increased in proportion to the amount of gas in their contents.

The downward course is the result of the direct action of gravity, which is constantly at work in this direction, in the sitting and standing positions. It acts upon the abdominal wall as well as upon the contained viscera.

The upward and forward course is due to the distention of the hollow viscera by gaseous, liquid, or solid contents. When these viscera are empty and collapsed, they follow the influence of gravity alone and travel downward.

Part of the downward course and of the ventrad and medad modification of the entire downward course, are due to the unantagonized downward and forward excursion of the diaphragm and inspiring lungs, which are in action fourteen to eighteen times every minute; and this displacing action is active in the supine as well as in the sitting and standing positions.

Part of the ventrad and medad modification of the entire downward course is also due to the greater relative development, and the greater bony content, of the posterior and postero-lateral abdominal and pelvic walls, as compared with the anterior and antero-lateral walls.

The diaphragm is set obliquely from above downward and from before backward, between the thorax and the abdomen. When passive and relaxed, it domes upward towards the thorax; when active and contracting, it descends into the abdomen. Whatever variations in activity may occur in different parts of the diaphragm, the oblique plane of its attachment makes its unmodified descent favor enlargement of the base of the thoracic cavity, from above downward and from behind forward, and diminution of the abdominal cavity in the same direction, *i. e.*, from above downwards and from behind forwards.

This action would make towards excursion of the inspiring lungs downward and forward, and towards excursion of the abdominal viscera downward and forward.

Clinical observation shows that this excursion is also towards the median line; this latter modification is explained by the observation of the writer that the sides of the diaphragm descend more than the center.

The great counterbalancing factor against these two forces which make for movement of the viscera downward, forward, and towards the median line of the abdomen, is the abdominal walls: (1) The anterior and antero-lateral muscles of these walls, which make towards antagonizing the descent of the diaphragm and lungs, and towards pushing the abdominal viscera backward, upward and laterally; and (2) the posterior and postero-lateral muscles and bones of these walls and of the posterior wall of the whole trunk, which make (*a*) for stability of the region which furnishes a point of departure for the action of all the abdominal muscles, as well as for all the large extensor activities of the trunk and lower and upper extremities; and which make (*b*) for enlargement of the thoracic cage in its posterior and postero-lateral planes. This favors backward and outward expansion of the lungs during inspiration; and this action lessens the downward and forward excursion of the diaphragm and lungs (with consequent *en masse* displacement of the viscera), decreases stress on the weaker anterior abdominal walls, and favors the development and conservation in them of the condition of reflex activity which the writer designates as competence.

Exposure of the viscera to the action of gravity is caused directly by incompetence of the abdominal walls, and, indirectly, by this incompetence of the abdominal walls modifying other body conditions, and being in turn modified by them, so that these body conditions themselves still further expose the viscera to the action of gravity and other displacing factors.

These body conditions are as follows:

(1) Erect (vertical) position of the trunk.

(2) Extension of the lower extremities in the plane of the trunk; this extension being, in its highest form, accompanied by adduction and forward rotation, so that the patella and toes point forward.

(3) Altered respiratory equilibrium, including unantagonized downward and forward excursion of the diaphragm and inspiring lungs.

(4) Retarded or uncompleted evolution of the abdominal viscera.

(5) Retarded or uncompleted evolution of the trunk and extremities (and even the head) in the direction of mutual independence for the release of specialized activities.

These conditions can all be studied in their earlier manifestations through comparative anatomy and physiology. In their advanced development, their study becomes exceedingly involved and intricate, because it enters the stage of evolution with which the human race is at present struggling.

Hence, the conclusion that abdominal competence is a developmental factor. This conclusion is verified by finding that its earlier phases can be traced backward through the vertebrate series and in human prenatal life; while the evolution of its later phases can be observed and studied throughout human postnatal life.

Outline of evolution of human abdomen.

(*A*) *Prenatal.*
(*A'*) *Status at term.*
(*B*) *Postnatal.*

Viscera appear before body walls.

Body walls at first merely enclose the viscera. This enclosure at first imperfect; later, the enclosure, as a whole, becomes complete, but certain localized areas of incompleteness (actual or potential) remain.

Viscera withdraw within the walls, and, by an orderly progression, take up within the body cavity certain positions which occur with sufficient predominance to be called "normal." These normal positions are antagonized by the unbalanced downward and forward excursion of the diaphragm and inspiring lungs, in the supine as well as the sitting and standing positions; by extension of the lower extremities in the plane of the trunk, in the supine or standing positions; and by gravity as soon as the individual assumes a sitting or standing position.

Coincident with the progression of the viscera toward such positions and relative size and volume as are called normal, the abdominal walls, as a whole, pass through a series of developmental changes, as a result of which they not only enclose the viscera, but also, by counteracting the displacing action of the diaphragm and inspiring lungs, of extension of the lower extremities and of gravity, they retain the viscera in their normal positions.

From the point of view of this retention of the viscera in position, the abdomen, as a whole, may be said to proceed in an orderly development from incompetence to competence.

When a competent abdomen is studied, its principal characteristic is seen to be the intimate and exact correspondence existing between the viscera and the muscle walls, by which the latter always move in the direction required to retain and support the former. The muscle reflex is so active that when the body is in motion, there is a constant play of the muscles of the anterior, lateral and posterior walls of the abdomen, adapting the latter to the changed conditions of pressure and stress which would otherwise reach the viscera; and *against gravity*, protecting these viscera from such conditions by interposing a firm muscle plane.

The abdominal wall is neither a rigid nor a flaccid structure, but one which is elastic and contractile; and this elasticity and contractility is constantly controlled by visceral and other reflexes. These reflexes are so co-ordinated that a relaxation of one part of the wall is controlled by the adjacent parts of the wall. In a perfectly passive condition, the wall may relax in part or as a whole; but in a competent abdomen the reflexes are also competent, and as soon as an active factor is introduced into relationship with the abdominal wall, its muscle reflexes are immediately aroused. Even during sleep, the muscular response of the abdominal walls to the visceral and other reflexes may be observed and studied. The earliest characteristic of an incompetent abdomen is a change in this muscle reflex, which becomes erratic, irregular, or partly or entirely absent. Later, structural changes occur, and portions of the abdominal walls may hang as more or less flaccid pouches whose reflex activity, under ordinary circumstances, has diminished almost, or quite, to a vanishing point.

One of the earliest characteristics of an incompetent abdomen is seen in the respiratory reflex. The incompetent portion of the abdomen is retaxed during expiration, as well as during inspiration; and upon forced expiration, as in coughing, is protruded (as in the case of hernia) downward and forward, as well as upward and forward. In advanced cases the whole abdomen acts in this manner.

Again, the portion of the abdomen which tends towards competence tends, in these cases, to overaction or even spasm. This tendency is seen in inspiration as well as in expiration. It affects most strongly the upper abdominal zone; and clinical observation indicates that this is one of the most potent factors in producing the retracted lower thorax.

The same tendency to spasm is seen in the extensor muscles of the back, and is an important factor in increasing the sacro-lumbo-thoracic anterior convexity.

In proportion as the abdomen fails to develop, or loses after development, its competence, the viscera tend to be displaced downward, forward and towards the median line, and the hollow viscera also upward and forward; in proportion as the abdomen develops competency, the viscera tend to be held upward, backward and laterally.

Every abdomen is, as a whole, competent or incompetent. This competence may vary greatly in degree.

Every abdomen possesses areas of localized incompetence; this localized incompetence may be only potential, or it may be actual.

General incompetence of the abdomen is physiological only in early prenatal life.

Development of general competence of the abdomen begins in later prenatal life; but its further development can be observed and studied from the moment of birth, through infancy and childhood to, in selected cases, its completion before the age of puberty.

Clinical observation shows that in the majority of cases this evolution is not completed at the age of puberty; that incompetence of the abdomen, with more or less visceral ptosis, persists through adolescence and early adult life — proceeding, at times, towards greater competence, or remaining stationary, or retrograding towards greater incompetence and more pronounced visceral ptosis, according to the activity of the concomitant factors to be enumerated. And, finally, that in the neighborhood of the fourth decade and beyond there is marked tendency in all individuals towards increased incompetence of the abdomen, with increased visceral ptosis.

Competence of the abdominal walls is, then, evolutionary; and while related to evolution of the abdominal viscera, is a later stage of development, and thus appears as to some extent independent of this latter; so that the abdominal viscera may proceed to the attainment of their normal position, although the walls are insufficiently developed towards competence; and it is, at least, possible that competent walls might be developed around viscera that had not entirely attained their normal position.

Nevertheless, bearing in mind the law that, given a cavity which contains no free space, and whose contents are movable, whenever the walls of the cavity are displaced, in whole or part, its contents are displaced in whole or part; and as it can be demonstrated that the abdominal wall is under the constant control of visceral and other reflexes, and is competent or incompetent according as these reflexes are active or in abeyance, it is rational to think that abdominal walls which have not attained competence must always affect the relative size and volume, and hence the relative or actual position of the contained viscera. And, conversely, that viscera which have not attained their normal size and volume, and hence their relative or actual position, must affect the attainment of competency by the containing walls.

Hence the study of visceral ptosis requires the study of the development of both viscera and walls.

STUDY OF EVOLUTION OF THE HUMAN ABDOMEN LEADS BACK TO EARLIER VERTEBRATE SERIES, AND FORWARD TO POSTNATAL DEVELOPMENT.

Evolution of human abdominal walls and viscera closely related to evolution of mammalian, or even vertebrate, abdominal walls and viscera.

Prenatal human development so closely resembles prenatal vertebrate development that failures in evolution of the human abdominal walls and viscera would most naturally be expected along lines suggesting the varying vertebrate paths.

Study of the evolution of the vertebrate abdominal walls and viscera, taken in connection with the fact that a progressive postnatal evolution of the human abdominal walls and viscera is constantly present in every individual, show that so-called congenital variations in either the abdominal walls or viscera should not necessarily be regarded as end results. These congenital variations may be merely retarded steps of the still ascending ladder; and, in such cases, their normal evolution may be accelerated or assisted by a knowledge of the normal postnatal development.

OUTLINE OF EVOLUTION OF VERTEBRATE ABDOMEN, INCLUDING MAN, SHOWING CONTINUITY AND CORRELATIONS.

(*A*) *Prenatal.* (*A'*) *Status at term.*

For details, see Report of Research Fellowship of the Society of the Lying-In Hospital of New York, 1903-04, by Agnes C. Vietor, M.D. (*In press.*)

(*B*) *Postnatal.*

In the supine position of infancy, the postnatal evolution of the abdomen proceeds. This evolution differs from the prenatal in that there are added the reactions of a new environment.

(1) Beginning of two new forms of visceral reflex activity with birth: (*a*) respiratory (absolutely new), and (*b*) digestive; this latter is new in regard to the presence in the stomach and bowels of food derived from the outside world; and the new activities set in motion by this factor in the liver, pancreas, kidneys, etc., setting free numerous new reflex stimuli to the muscles of the abdominal wall.

(2) Beginning of new surface stimuli from changed environment (thermal, tactile, etc.).

(3) Increased and new activity of the muscles of the lower extremities, spine, pelvis, thorax, upper extremities, and even the neck and head. Activity of all these regions can be shown to have direct connection with the activity and development of the abdominal walls — the lower extremities, pelvis, lumbar spine and thoracic cage being most immediately and powerfully related though the upper extremities are also of great importance.

Such a large number of contributing factors sufficiently indicate the complexities of the process of evolution of the abdominal walls.

Clinical observations of the writer during fourteen years show that this complex process is still in progress; that the human race is still struggling towards the attainment of a competent abdomen and the retention of the abdominal viscera against gravity and other displacing forces; that only a minority of the race attain this higher development, and that though attained, it is an unstable possession and may be lost at any subsequent age.

This instability of the abdomen exists at the present day in the most primitive as well as the most civilized peoples; and its existence can be traced among all peoples as far back as pictorial history extends. Illustrations.

Incompetence of the abdominal walls with the consequent displacement of the abdominal viscera, continually struggling towards competence of the abdominal walls with the consequent retention of the viscera in position is, therefore, a generic condition, or even a vertebrate condition.

Seeking the anatomical basis for this generic condition, one is carried backward to the vertebrate series, and one notes that competence of the abdominal walls is correlated successively with —

(1) The ascent of the trunk from a horizontal to a vertical plane; an ascent in which the dorsal surface or back leads, the ventral surface lagging. This ascent begins at the cephalic extremity of the body and proceeds caudad.

(2) The tendency of the ventral and dorsal surfaces of this vertical trunk to approach each other in approximately parallel planes.

(3) The affiliation of the pelvis with the spine, and its consequent association with the trunk rather than with the lower extremities—the pelvis becoming virtually an expanded sacrum, following this latter bone in all its positions; a transference of affinities from the position of proximal division of the lower extremity to that of distal division of the trunk.

(4) The gradual transference of the weight-bearing function which, beginning with the body wall itself, is transferred to four specialized outgrowths of this wall, the two fore and two hind limbs. These limbs combine the function of weight-bearing (a more or less passive process) with various specialized functions (active processes), prehension, locomotion, etc.; and in proportion as one of these classes of functions predominates, the other is impaired, and conversely. Thus, exercise of the weight-bearing function impairs the exercise of the higher specializing functions; and exercise of the higher specializing functions impairs the exercise of the weight-bearing function.

(5) The gradual transference of the weight-bearing function from the cephalic towards the caudal extremity of the trunk, and the consequent development of the cephalic division and outgrowths of the trunk, so set free, towards independence and more highly specialized functionating.

These processes may be seen epitomized in studying the ascent of the infant from the prone to the creeping position.

(6) The assumption along this path of the weight-bearing function by the pelvis, which is now the lowest division of a more or less vertical trunk. The pelvis is more or less erect, resting on the *tuber ischii* or on the oblique plane posterior to these processes, more rarely on the oblique plane anterior to these processes. It acts as a containing basin and assists the abdominal walls and back in the support of the viscera. In this position, the hind limbs are freed from weight-bearing, but the thighs remain flexed, abducted and rotated outward, in a position well suited to that variation of their weight-bearing function which leads to their supplementing the pelvis and abdominal walls in supporting the weight of the viscera, but also a position favoring earlier specialized functions.

This is an occasional position of many mammals, especially of the anthropoids and of the sitting child. Its evolution may be shown in the study of the ascent of the infant from the supine to the sitting position.

(7) The further transference caudad of the weight-bearing function to the two lower extremities, which become, for the first time in the animal series, fully extended in the plane of the vertical trunk.

The expanded, weight-bearing base of the trunk, the pelvis, is suddenly contracted to the small area of contact between the acetabula and the heads of the femora, in connection with the bony portions of the pelvis which act as a medium of weight transference between the spine and the acetabula.

This bony support is supplemented by fibrous and muscular tissues, but the weight of the trunk walls and viscera is so great that until these walls have adapted themselves to the new position by transitional changes, the lower extremities are still called upon to assist in weight-bearing in the older mammalian way. This is done by the femora continuing flexed, abducted and rotated outward, with corresponding positions of the leg and foot.

This is a frequent position of many mammals, and these processes may be shown in development in studying the change from the horizontal to the vertical trunk in one of the higher mammalia, as the dog or bear.

As the trunk is erected and the weight-bearing is transferred to the lower extremities, the pelvis follows the sacrum, which, in turn, follows the main spine in its vertical ascent. As a result, the pelvis is no longer erect, resting on the *tuber ischii* or on the oblique plane posterior or anterior to these processes, and assisting the abdominal walls and back in the support of the viscera. Instead, the pelvis becomes inclined obliquely to the vertical plane, so that the crests of the ilii tend to fall forward and downward, and the *tuber ischii* rise backward and upward. Instead of a containing basin, acting as a receptacle for the viscera, the pelvis becomes a tilted basin, throwing the viscera forward and downward against the abdominal walls.

This forward inclination of the pelvis follows the extension of the lower extremities (thigh) in the plane of the trunk. It may be studied in the stillborn, in the supine position, by changing the lower extremities (thigh) from the position of spontaneous flexion, abduction and outward rotation, present at term, to that of extension, adduction and forward rotation.

These processes may be shown in studying the young infant, in the supine position, as it spontaneously develops this extension of the lower extremity, with forward rotation of the pelvis; and in the child, as it progresses from the sitting to the standing position.

(8) And, finally, the concentration of the caudad transference of weight-bearing along each lower extremity, independently, so that, in its highest form, each lower extremity is in itself able to support the weight of the entire body, leaving the other lower extremity free to exercise its specialized function of locomotion, etc., in the vertical plane.

Illustrations of (1) to (7) in studying the changes produced in passing from the horizontal to the vertical trunk in one of the higher mammals, as the dog or the bear.

Similar changes observed in studying the newborn and infant.

Study of the newborn, the infant and the child illustrates similar changes, and also the evolution of (8).

Mechanism of this evolution as observed in the study of attitudes and spontaneous movements of newborn and infants, and the creeping, sitting and standing child.

Illustration of this mechanism by diagrams, measurements and photographs of stillborn, and by photographs of infants and children.

Illustrations of continuity of this mechanism in the adolescent and adult by diagrams, measurements and photographs.

(To be continued.)

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WHAT SHOULD BE THE ATTITUDE OF PUBLIC SANATORIA TOWARD CASES OF TUBERCULAR LARYNGITIS; WITH SUGGESTIONS AS TO THE GENERAL PLAN OF TREATMENT OF SUCH CASES IN SANATORIA.

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VIEWED from the standpoint of its literature for the last few years, the workers in the field of tuberculosis can be divided into two classes with somewhat different points of view, though dealing with the same general problem.

First, that class of workers who treat tuberculosis purely from the standpoint of an affection of the lungs, with the knowledge that it secondarily involves other organs, but who in the main disregard those organs either as etiological factors or to be specially considered from the therapeutic standpoint; and, secondly, the distinctively special workers in the diseases of the upper air tract, who treat and write of tuberculosis as they see it, namely, as affecting the larynx, the pharynx and the nose. Very little on the subject of the laryngeal aspects of tuberculosis can be found in the writings of the first class, and relatively little as to the pulmonary side of it in the writings of the second. It has seemed to me that there should be more community of effort in the ranks of the two workers, and that the laryngeal aspect of these cases was being decidedly neglected by phthisiologists in general. I believe, therefore, that it is time for the public sanatorium and the workers in behalf of it to take more into account the laryngeal side of these cases, not only as regards treatment, but as regards early diagnosis as well, and that the phthisiologist and the laryngologist should work together, or else that the phthisiologist should be, from a diagnostic standpoint at least, sufficiently trained in laryngology to make a proper laryngological examination of every case on which he passes an opinion, and be competent to properly treat the laryngeal complication should it be present.

Unless I am very much mistaken, the average sanatorium physician and the average sanatorium is inclined to discriminate against cases of laryngeal tuberculosis as regards the admittance of patients, and is very seldom properly equipped to care for them if these lesions happen to affect any of the patients under their care. Most sanatoria either make no provision for the treatment of the throat complications of tuberculosis, or, if they do, do so only in a half-hearted manner, and seldom have properly trained assistants for this purpose. On looking over a number of reports of public and private sanatoria, I find almost no reference to the laryngeal complications, although now and then an announcement of a private sanatorium will state that it has a well-equipped throat room, and a picture of such a room may be given, equipped with more or less impressive looking apparatus, yet in the statistics no mention will be made of the presence or absence of tubercular laryngitis, nor do I think that in the routine examination for admission, the larynx is, as a rule, examined.

In 1901, the German government published and distributed at the British Congress on Tuberculosis the results of the treatment of 6,273 patients treated at 31 sanatoria. I can find no reference in this report to laryngeal tuberculosis at all, nor does any mention of the throat occur in the copy of the statistical card used by the Imperial health board, though there is a column for complications of all kinds. In the application blank of our own Massachusetts State Sanatorium there is a line for condition of the throat, but a search of the reports and the publications emanating from the sanatorium, so far as I have had access to them, would seem to show that in the past at least, this factor in tuberculosis has not had much prominence given to it, as I find no reference whatever to such a thing as laryngeal tuberculosis.

From the little which will be found in the publications of the general phthisiologist on the laryngeal side of this subject, it would seem as though laryngeal tuberculosis could almost be ignored as a prominent factor in the disease, yet when one turns to the writings of the distinct specialists in throat diseases, one finds a mass of literature devoted to it. Statistics as to the absolute frequency of laryngeal tuberculosis are frequently unreliable because the average case of consumption does not have an examination of the larynx made unless the laryngeal symptoms are so manifest that the patient's physician or his friends send him, sooner, or later, to the laryngologist. Such statistics as I have been able to find would seem to show that the relative proportion is at least as high as 15% to 20% in which there are positive laryngeal lesions, and some statistics give it very much higher. Habershon examined the records of post-mortem examinations at Brompton for ten years and found 1,255 cases of pulmonary tuberculosis, 853 in men and 402 in women. Among them 595 cases of tubercular laryngitis were recorded, about 48%, of which 116 only were in females.

For the last year and a half all of the patients entering the Massachusetts State Sanatorium have had a laryngeal examination made, and the results of such examination recorded. No reports have been published nor have they as yet been tabulated, but I am informed that the proportion of patients showing laryngeal lesions would not be anywhere near as high as above stated.

In a paper by W. Jobson Horne, of London, presented at the annual meeting of the British Medical Association at Leicester, in 1905, he refers to a clinical and pathological research which was commenced in 1893, the results of which were communicated to the British Medical Association in 1898. "These results showed that 97% of the cases of phthisis experienced symptoms referable to the larynx at one time or another in the course of the disease, and the investigation further went on to show that the routine examination of the larynx, in persons suffering from symptoms suggestive of early pulmonary disease, would often enable a diagnosis of phthisis to be made at a time when the stethoscope yields no evidence, and that is at a time when the physician can be of the greatest service to his patient."

"Side by side with this clinical investigation there was a pathological one on subjects dead from pulmonary tuberculosis, but in which the larynx presented post-mortem no evidence of disease to the naked eye. The results of that laboratory research showed lesions in the deeper structures of the larynx which fully accounted for laryngeal symptoms during life."

"Further investigations, since conducted on similar lines, have confirmed the conclusions that were then arrived at, namely: that an early diagnosis was essential for the arrest of the disease in the larynx and the lung, and that of the various aids employed in arriving at an early diagnosis, the laryngoscope was deserving of more routine use. The laryngoscope, the clinical thermometer, the weighing machine, and the carbol fuchsin must be the physician's first aids at a time when he can be most useful. The stethoscope is helpful in forming an approximate opinion of the extent of destruction occasioned by the disease, but is of very little help in arriving at an early diagnosis."

Whether the larynx may be primarily involved or not is a question which has had very much consideration among laryngologists, with substantially the following results, namely: that primary laryngeal tuberculosis does occur; that the infection enters either directly through an abraded surface, as secondary to certain other laryngeal surgical procedures, or that the bacillus takes direct lodgment in some of the spaces around the larynx. The number of authentic cases of primary laryngeal tuberculosis is few, so few that so far as the mass of cases of tuberculosis are concerned, these may be neglected entirely. As a rule, the disease in the larynx progresses at the same time with that in the lungs, and when the disease in the larynx shows marked changes, that in the lung has advanced in a similar manner, the infection in the larynx being secondary to that of the lung, and the infection of the larynx may have taken place at a very early stage in the disease. The parts infected are those portions of the laryngeal mucous membrane which are most abundantly supplied with glands, namely: the arytenoid region, the inter-arytenoid space, the ventricular bands, the tip and cushion of the epiglottis and the folds connecting the epiglottis and the larynx. The cord itself, or rather its essential part, seems to be infected, as a rule, secondarily, as this part of the cord is covered with squamous celled epithelium and so devoid of glandular structures. The hoarseness is usually due as much to interference with the phonating mechanism by involvement of the ventricular bands, the arytenoids and the inter-arytenoid space as to direct involvement of the cord. The point most apt to be affected in tne very early stage is the inter-arytenoid space, that is, the posterior area where the outwardly expectorated sputum would be most apt to lodge, and a point especially subject to stress and strain, and, at the same time, abundantly supplied with glands, the tubercle bacillus probably gaining access through the ducts of the glands and developing in the submucosa. The process is preceded probably in every case by a catarrhal inflammation which makes the delicate vascular membrane more sensitive than usual to the invading tubercle bacillus, especially if the recovery from the acute or subacute laryngeal inflammation be incomplete. Statistics show that the larynx is most often affected in those whose occupation entails excessive use of the voice and in those who live or work in a dusty atmosphere, and as shown by the Brompton statistics, is found twice as often in men as in women. It is especially common in Vienna where there is a great deal of fine irritating dust. In the Vienna laryngological clinics laryngeal tuberculosis can be studied in all its phases.

The diagnosis in the very early stage may present some difficulty. The larynx along the vocal cords will be usually anemic, with hyperemia of the arytenoids, and a degree of hoarseness sometimes which seems out of proportion to the apparent local lesion, and due to a general muscular weakness of the larynx. Following this there is a slight elevation in the inter-arytenoid space, followed by a small, cauliflower-like excrescence or by a general thickening, and producing considerable local irritation from scraping and hoarseness due to inability to bring the two cords absolutely parallel. Later the disease will develop along two lines, either a general infiltration without ulceration, where the arytenoids will become round, dome-like bodies or club shaped; the false cords swollen, hyperemic and meeting in the middle line before the true cords meet, or an infiltration with new growth followed by a true ulceration of individual areas with localized breaking down of tissue, the other parts being relatively unaffected. As the disease progresses, one or the other or both of the arytenoids and perhaps the epiglottis becomes involved, together with the aryepiglottic folds. At this stage the clinical picture will have some resemblances to that of carcinoma of the larynx. This, of course, is of a later stage and covers a class of cases which the sanatorium would not be expected to take at all, and, therefore, hardly to be considered at the present time, where I am concerned in taking up only the early lesions and those which, it seems to me, the sanatorium should take cognizance of and properly treat. These are the milder types of ulceration affecting the arytenoids, the new growths and excrescences of the inter-arytenoid space, the vocal processes, where the arytenoid is attached to the cord and the false cord. These may all be affected in the early stages of the disease.

Jonathan Wright states that no diagnostic description of these lesions can be given whereby a person could, with certainty, distinguish them. They have to be learned by actual practice on the patient. Hence, if the cases of laryngeal tuberculosis are, as the laryngologist believes, much more frequent than the phthisiologist has hitherto taken notice of, the diagnosis and treatment of the laryngeal lesions should have a much larger place in the therapeutics of tuberculosis than it has previously had.

In the later stages the treatment of the laryngeal manifestations is decidedly discouraging. In the earlier stages with limited lesions, these can be surgically removed or treated directly by medicinal agents with gratifying success. Furthermore, many of the methods of treatment for the laryngeal trouble will materially modify the pulmonary condition as well, and many medicines, by means of a proper laryngeal technique, can be introduced directly to the lung without much discomfort to the patient. This is especially true of the early cases where sanatorium treatment should be especially valuable; rest of the larynx — open-air living — ample food, antiseptic inhalations and mild astringents direct to the larynx, together with such drugs as seem to have direct effect upon pulmonary metabolism, such as the hypophosphites of lime and soda. Anemia should also receive its appropriate treatment, and if emaciation, fats. The cough should be allayed so that it ceases to be a constant irritant. In my own experience I have found nothing so valuable for the cough as small, repeated as needed, doses of sulphate of codeia.

The simple ulcerations can be destroyed by medicinal caustics or by the galvano-cautery, and of the remedies most useful, lactic acid and parachlorphenol easily take first rank. Lactic acid seems to have the power of not injuring any of the rest of the mucous membrane with which it comes in contact, and to have distinct action on the tuberculous tissue, while the phenol supplements the action of the lactic acid. I published several years ago a number of cases of laryngeal tuberculosis markedly benefited by this method of treatment, and later experience has only confirmed the views then held. Where there is a manifest excrescence, and the patient can be gotten at all tolerant, I believe the Krause double curette is the most effective of all methods for directly removing the tubercular tissue, and to one skilled in laryngeal technique, does not present insurmountable obstacles. Following the surgical procedure the lactic acid and phenol should be used for the time being in order to further destroy any tuberculous tissue which the curette has failed to remove.

For those cases which show only moderate degree of laryngeal involvement, either hyperemia of the arytenoids or anemia of the cords, and who have more or less hoarseness and considerable irritating cough, solutions of antiseptics such as menthol in 1% guaiacol, creosote and the whole list of those which might be mentioned, can be very easily gotten into direct contact with the larynx either through the laryngeal syringe, or what is by far the best thing gotten up, the De Vilbiss compressed-air laryngeal syringe. This requires only the smallest current of compressed air; the patient can easily be trained to inhale at the proper moment; the cough follows immediately afterwards, but only a small portion is expelled, and the remedy is brought into direct contact not only with the larynx, but with the diseased lung as well. Even opiates can be given this way, as well as orthoform if necessary for the later stages where laryngeal anesthesia is necessary, and under treatment laryngeal lesions may appear to be cured even where there is no absolute cure. This is well worth while since the laryngeal lesions when present often trouble the patient very much more than the pulmonary ones, giving rise to much more discomfort and pain and more urgently needing palliative treatment, and if the laryngeal condition can be kept in abeyance so far as its direct irritation is concerned, the comfort of the patient is very much improved. Taken early these measures produce results which are fully commensurate with the time and skill required, and it seems to me should be just as much a part of the sanatorium treatment as any of the other measures instituted in behalf of the cases.

The question of cure here, as elsewhere, in tubercular conditions, has a varying meaning. Strictly speaking, it can only be applied to either pulmonary or laryngeal lesions where the disease has either become absolutely quiescent, or the diseased area has become replaced by cicatricial tissue. The question or not as to restoration of voice where there is marked hoarseness will depend entirely on the muscular involvement, the condition of the vocal cords, and the fixation of the arytenoid cartilages. If the arytenoid is free to move and the other lesions are not extensive, pretty complete restoration of the voice may be hoped for.

The tubercle bacillus is not always found in the removed tissue, or may not always be demonstrated in the laryngeal secretion when there can be no reasonable doubt as to the diagnosis. This, in no way, militates against the probability of laryngeal tuberculosis when the other symptoms are present. The ideal treatment of laryngeal disease, according to Jonathan Wright, is one in which the local measures can be judiciously and helpfully carried out during the continuance of climatic treatment.

As the state of Massachusetts is endeavoring, at great expense, to cure the early and incipient cases of pulmonary tuberculosis, it seems to me that the question as to the care and proper treatment of the laryngeal complications should be more seriously taken up than it has ever been, not only for the care from the patient's standpoint, but also for the scientific results which it may be possible to obtain along this line. This is especially so since these cases are especially suitable for sanatorium treatment where silence and a proper regime can be carried out. So far as the admittance of cases is concerned, I do not think that the state has any right to refuse apparently favorable cases because they chance to have laryngeal lesions, but should provide proper facilities for their treatment.

The state of Massachusetts has the largest and probably the best equipped tuberculosis clinic in the world. Statistics and carefully tabulated information on all phases of the tuberculosis problem should come from such an institution for the information and guidance of the mass of the profession. Its annual medical reports should be real contributions to the literature of tuberculosis, and not, as now, a mere statement of the number admitted, number discharged, arrested, improved and not improved. Monographs covering the questions of diet, hemoptysis, the various medicines which are advantageous; in fact, the various phenomena of the disease should be regularly published as parts of such reports. If that were done, in a few years a series of the reports would be a valuable library on tuberculosis, useful to every physician, while at the present time the medical reports are practically worthless so far as being of any use to the profession in general is concerned.

At least one of the resident physicians of the state sanatorium should be a trained laryngologist with a sufficiently good laryngeal technique to do whatever may be necessary in the way of treatment or minor surgical operations, and the initial examination by the examiner for admission should not be considered complete until a careful examination of the larynx has been made, and no person should be considered a proper candidate as an examiner for this institution who is not himself either qualified to make such an examination or who is not willing either at his own expense or at the patient's to have such an examination made by a competent laryngologist. Until this is done, mistakes will be constantly occurring, and a valuable aid both in prognosis and treatment will be lost.

At the meeting of the British Medical Association, to which I have already referred in the quotation from Dr. Jobson Horne, Mr. Harold Barwell, of London, read a paper on " The Choice of the Method of Treatment in Cases of Tuberculous Laryngitis, With a Plea for the Routine Inspection of the Throats of Consumptive Patients," the conclusion of which is so entirely in accord with my own feelings in regard to the subject, that I wish to quote it entire as my own conclusion.

" Although tuberculous laryngitis is found principally in an advanced stage of pulmonary phthisis, yet it occurs much more often at an early stage of consumption than is believed by the profession in general. Then, again, the disease not uncommonly leaves the cords at first unaffected, and may reach a somewhat massive degree of infiltration of the arytenoids before causing dysphagia, so that it may, and often does, give rise to no symptoms whatever until it is considerably advanced. For these three reasons: because it is common in all stages of phthisis, because it may cause no symptoms to attract attention, and because the early stages are much more amenable to treatment, and also because it produces one of the most painful and distressing forms of death — I most strongly urge that all cases of consumption should have their larynges inspected at regular intervals and as a matter of routine."

ACCIDENT LITIGATION — THE POPULAR " GRAFT."

BY FRANK C. RICHARDSON, M.D., BOSTON,
Professor Clinical Neurology, Boston University School of Medicine

While the American public has recently been interested in following the revelations of " graft," political and corporate, there has crept insidiously over the country, unnoticed save by its victims, a form of graft not only threatening the financial welfare of some of our larger business interests, but especially pernicious in that by reason of its temptation to conscious or unconscious perversion or exaggeration of fact, it is damaging to the moral integrity of the masses who are its most frequent perpetrators.

I refer to the wide-spread and constantly increasing demands for exorbitant sums as compensation for real or fancied injuries resulting from alleged negligence of corporations or individuals. There can be no doubt that the mechanical age in which we live, the haste of modern civilization, the enormous traffic of our common carriers, all tend to largely increase the liability to accident. Neither can there be question that those concerned in enterprises involving risk to others should be made to pay for any neglect of duty in safeguarding the health and life of those under their care. Nevertheless, one must to-day stand aghast at the wholesale litigation which seems almost epidemic.

The rapid and steady spread of the accident litigation mania is well illustrated by the somewhat startling statistics obtained by E. Parmelee Prentice, from an examination of the records of the Chicago courts. In 1875, there were altogether about 200 personal injury suits pending in Cook County. During the first six months of 1890 the number of these suits brought in Cook County was 346, the total damages claimed being $2,814,860. During the corresponding six months in 1896, the number of such suits brought in Cook County was 893, and the total amount of damage claimed was $13,510,000. It would be reasonable to assume from these figures that there are now pending in Cook County 3,600 of these cases, and that the damages claimed are between $50,000,000 and $60,000,000. Of course this enormous increase is out of all proportion to the increase in the number of accidents.

As illustrating the extent of the epidemic in our own territory, let me quote from a letter recently received from Mr. Russell A. Sears, General Attorney for the Boston Elevated Railroad, in courteous response to my inquiries. He writes: " The average cost to this company of accidents per year is one-half million dollars; it varies somewhat between $400,000 and $600,000. This is the bare sum which is paid out to claimants and does not include the expense to which the company is put in the preparation and defence of claims and suits.

" In answer to your further question as to the amount involved in pending suits I am not able to answer very definitely. I am more than conservative, however, when saying that the *total amount claimed* by plaintiffs against this company alone exceeds the sum of ten millions of dollars. As this company probably is called upon to settle and defend about a quarter of the entire claims and suits pending in this county, you can easily see the immense amount involved in suits now awaiting trial — according to my estimation not far from fifty millions of dollars."

Equally startling statistics are available of sums paid in other cities as compensation for personal injuries. Mr. Chauncey S. S. Miller, of the Casualty Company of America, tells me that while some of the claims departments of large corporations are rather loath to divulge information regarding the amounts paid in settlement of negligence cases, fearing that it may lead to more and greater claims, they, generally speaking, believe that publicity is the best possible remedy for the evil.

I will not weary you, however, with further statistical evidence of the alarming prevalence of this popular extortion. Its practice constitutes a wrong, the responsibility for which the medical profession must in no way be induced to share — neither by the importunities of patients nor of lawyers.

It may not be known to you that there are law offices organized to solicit business, with a corps of retainers expected to distance the doctor and the coroner, printed contract in hand ready for prompt execution by simply filling in names and dates. Who has not heard of ambulance chasers? If a definition is necessary let me quote from an annual address of the president of the Medical Society of the State of New York: " There are lawyers," he said, " known to the bar as ambulance chasers, who have runners constantly on the watch for accident cases of which they learn through the daily papers. These unscrupulous members of the bar, with the aid of equally unscrupulous members of the medical profession, rob corporations of thousands of dollars every year."

Within a few months the following item was widely published in the public press: " A priest has handed $550 to the manager of a New York city railroad company saying, as he did so, " The money was obtained from you in a damage suit by one of my parishioners, who has confessed to me that a lawyer coached her and induced her to perjure herself. Her conscience troubled her, she confessed to me and asked me to return the money.' "

While the influence of the unprincipled lawyer in the promotion of this popular " graft " is well understood, and while, I fear, it is too often true that he finds a useful accessory in the complacent doctor who, instigated by sympathy or imbued with the common belief in the legitimacy of accident litigation, encourages his patient to build up an imposing symptom complex, let me hasten to assert my belief in the rarity of physicians who resort to deliberate deception or misrepresentation of the matters under consideration. I have no doubt, however, that many times physicians whose efficiency and honesty are absolutely above suspicion, prompted solely by a desire to arrive at all the facts of the case have, by a series of well directed questions, prepared the basis for a suit such as is often brought. Once involved as a participant in litigation they too often become partisan and too rarely view the facts with a calm intelligence, but rather, influenced by what has been described as " the instinctive tendency of the imagination to dramatic unity and completeness," are led to the unconscious perversion of facts to fit some preconceived theory or idea. This mental attitude is reflected upon the patient and the mischievous influence is complete.

It has been well said that men think in herds. The imitative tendency of communities is well known and it has become the fashion to consider corporations or responsible individuals legitimate sources of revenue, whenever and however the extortion can be consummated. This mental attitude has spread, until, by reason of limitless example and natural avarice, the public conscience has become seared, and the recipient of the slightest injury immediately sees visions of ingots dance before his eyes; the litigation obsession lays hold upon him, and autosuggestion soon furnishes a train of symptoms sufficient to favorably impress a sympathetic jury.

I am not now referring to actual malingerers. After eliminating intentional accident fraud it is certain there remains a large class of cases without history of material injury, the symptoms of which can justly be attributed to suggestive influence, and a word of caution seems timely lest through failure to appreciate the true character of the situation our physicians carelessly lay themselves open to the imputation of collusion with the corrupt circle of grafters.

The aspect of accident litigation has entirely changed since the days when damage suits were always brought for material injuries. The loss of an arm, leg, or an eye, and similar results of violence were unmistakable and afforded real evidence upon which to base a demand for damages.

In recent years, however, it has become legitimate to expect compensation for less tangible suffering, and a large proportion of claims are based upon purely subjective symptoms of nervous character. Mr. Russell A. Sears informs me that the large majority of all suits brought against the Boston Elevated Railroad are based on claims of various nervous complaints.

There can be no doubt as to the actual existence and the, at times, serious nature of functional nervous conditions produced by trauma. Neither can we question that the profound mental emotions aroused by the special features and incidents attending an accident, may, of itself, without the addition of physical injury, be the cause of more or less immediate hysterical or neurasthenic manifestations. Nor should we forget that truly hysteric persons are sufferers and not impostors. Bearing in mind these facts, it is, nevertheless, patent to one having opportunity for observation, that the litigation habit based upon functional nerve disturbances has far outgrown all legitimate proportions, and that awards for damaged nervous systems are frequently a ridiculous travesty upon justice.

Neurologists are now practically agreed that a special form of neurosis excited by trauma does not exist, but the term " traumatic neurosis " has come to be generally applied to this particular class of cases and will be used in this paper simply as a generic designation under which to classify the functional nervous disturbances most often found resulting from trauma, namely, hysteria, neurasthenia, hypochondriasis and their combinations.

Litigation is undoubtedly a potent causative factor in the production and prolongation of these functional neuroses, but those cases where it is the chief cause present symptoms, according to my observation, of a much milder grade and can usually be distinguished from those resulting from actual injury.

The object of this paper is to point out the possibility and importance of differentiating these " litigation psychoses," as they have been termed, from what may be called true traumatic neuroses, and thus avoiding the danger of contributing to injustice either to claimant or defendant.

The all-important question, and one often most difficult to decide, is whether the patient actually believes himself to be as ill as he claims to be. It will frequently become your duty to discriminate between unconscious exaggeration and that variety of exaggeration which is the outcome of avaricious desire for litigation graft. This problem is by no means easy of solution. Under most favorable circumstances subjective symptoms are not always trustworthy. In litigation cases in which there exist the strongest motives for exaggeration or deceit it is imperative that the physicians be cautious about too unreservedly accepting the patient's statements; and, in my opinion, one unmistakable objective sign is of more value than all the purely subjective symptoms. Fortunately we have a sufficient number of objective tests to enable us to arrive in almost all cases at fairly definite conclusions, and when no objective evidence is found there is every probability that the patient's suffering is at most but slight.

Hysteria as a distinct disease, with its palsies, contractures, convulsions and the like, rarely results from trauma. When it owes its origin it injury it is usually of mild grade and almost always associated with marked neurasthenic symptoms. The majority of so-called " traumatic neuroses " are made up of this combination of mild hysteria and more or less pronounced neurasthenia. While occasionally isolated grave symptoms may be found, the physician will, in most cases, have to depend for his positive information upon a group of less tangible objective signs to which I wish to call attention.

I have recently tabulated one hundred medicolegal cases which have come under my observation, selecting for this purpose those based upon functional nervous disturbances as the chief cause for complaint. I shall not at present inflict upon you a complete analysis of these cases, but I think you will be interested in certain facts elicited, as bearing directly upon the subject under consideration.

The prominent objective symptoms of traumatic neurosis as revealed by my tabulation are, exaggeration of deep reflexes, rapid pulse, tremor, vasomotor disturbances, loss of weight, irritable heart and motor weakness.

The most constant symptom was exaggeration of deep reflexes, it occurring in 69 of the 100 cases. While loss of knee-jerk is probably never the result of functional disease, exaggeration is the rule. The increase affects the two sides equally. A slight exaggeration cannot be regarded as of any particular significance and the best judgment should be exercised in interpreting the results of tests. In all the cases tabulated these tests were carefully made, checked by counter tests, and only actual increase credited. Under these conditions exaggerated knee-jerk, especially if associated with other symptoms, lends confirmatory evidence as to the existence of morbid functional states.

In 51 of the cases under consideration the pulse rate was 90 or higher; in 26 cases it was 100 or higher. Rapid pulse, although an objective sign, is not necessarily an evidence of disease. In most people the heart becomes more rapid at the time of examination and this is especially true in persons of nervous temperament. This symptom, therefore, is important only when consistent with others presented.

Tremor was observed in 43 cases and was either general or localized as in the head, tongue, or hands. The tremor commonly found after accident is fine, becomes somewhat increased on intended movements, and is much intensified by emotional influences and by fatigue. Very occasionally it is found to simulate the tremor of paralysis agitans or the coarse intention tremor of multiple sclerosis.

Vasomotor disturbances occurred in 43 cases and consisted of flushing and paling, dermographia and diaphoresis, local or general.

Loss of weight was reported in 41 cases, and varied from ten to forty pounds. Loss of weight is usually the result of malnutrition and is, as a rule, a late manifestation. Occasionally, however, it is sudden and rapid, probably in consequence of an abnormal expenditure of nervous impulses incident to shock.

Irritable heart was present in 29 cases, and consisted of degrees of variability from simple arythmia to severe tachycardia. Cardiac irregularity is, of course, unmistakable and far more significant of nervous disturbance than simple increase of pulse rate.

Marked general weakness was found in 28 cases. While the functional paralyses seldom follow accidents we not infrequently find the vitality of the whole muscular system very much lowered. Actual muscular force seems only slightly impaired, but the weakness is rather shown by the quickness with which the muscle becomes fatigued. For example, the dynamometer grasped successively a number of times registers less and less as muscular power becomes exhausted. This fatigue cannot be referred to the muscles alone, but is evidently shared by nerve cell, nerve fibre and muscle cell, and thus becomes a truthful expression of the general condition of the nervous system.

I purposely omit mention of the more rarely found manifestations of hysteria, such as anesthesia, hyperesthesia, contractures, spasms, palsies and contracted visual field, preferring to confine your attention to the commoner objective signs of traumatic neuroses which serve as an aid to differentiation and require no special knowledge beyond that of the general practitioner.

In 63 of the 100 cases tabulated there were present three or more of the above detailed symptoms. There was found to exist usually a marked correspondence between the severity of the subjective symptoms and the number of objective signs, the fewer of the latter being present the less severe the sensory manifestations. But 17 of the 100 cases failed to show any objective symptoms. These were regarded as examples of litigation psychoses, which opinion was corroborated by other than medical aspects of the case, and in most of them confirmed by their ultimate outcome.

From a considerable acquaintance with personal injury cases, generally, too, from the view point of the plaintiff, it is my opinion, strengthened by an analysis of these tabulated cases, that without the corroborative proof of objective symptoms, we are, in the great majority of accident neuroses, justified in regarding the alleged injury as willfully exaggerated or as belonging to the so-called litigation psychoses. I permit myself some reservation because I realize that not only is it possible for mild grades of neurasthenia and hysteria to exist without objective sign, but also that long continued mental anxiety and worry attendant upon litigation may provoke hystero-neurasthenia severe enough to cause objective symptoms. I believe, however, that such instances are rare and will serve simply as the exceptions going to prove my rule.

Even were the exceptions many we must welcome any rule that will, in the least, aid us to detect willful fraud or self-deception and to check the growing evil of accident litigation, an evil the reform of which is acknowledged to be a necessity.

Speculative litigation is at present such an important branch of law practice that little aid in effecting such reform is to be expected, I fear, from the legal profession.

It is largely to the medical profession that we must look for relief from this as from so many other ills.

There can be no more potent factor in influencing the process of litigation than the attending physician. It is to him that the patient turns from the importunate lawyer for advice. His testimony is a necessity in every court trial. Upon him rests largely the burden of correctly representing and interpreting the facts of the case. With such responsibility confronting him it is imperative that he should be most thorough in his investigations. He should keep constantly in mind that his function is scientific and not commercial. He must in all cases assume an attitude which is not sympathetic, but critical. He should be on guard against imposture of whatever kind,— whether it is the claim of injury where it does not exist, or the exaggeration of real injury, or the allegation that a pre-existing disability has resulted from the accident. Ever bearing in mind the pernicious effect upon his patient (morally and physically) of the vexations and annoyances inseparable from damage suits, he should do all in his power to favor an early adjustment of the claim. He must beware of the persuasive eloquence of mercenary lawyers and of the solicitations of interested relatives and friends. He should never be tempted to sacrifice dignity and honor for the sake of gain. In short, he should never lose sight of the high scientific and ethical standard of the medical profession which it is his duty to maintain, and in so doing he should avoid even the appearance of participation in litigation "graft" and so conduct himself in his relation to these cases that he is free from suspicion.

Clinical Department.

TYPHOID PERFORATION: OPERATION: RECOVERY.

BY FREDERIC J. COTTON, M.D.

William S., age thirteen. He had been in the City Hospital nine days previous to my seeing him, under charge of Dr. Henry Jackson. Had been ill for six days before entrance. During these nine days he had been running an ordinary typhoid course, with temperature suggesting a slightly longer duration of illness before entrance than was given in the history. Had been dull, semi-comatose, without abdominal pain or special distension. On entrance the white count was 6,300, Widal reaction was negative. Six days later the urine showed a very slight trace of albumen with a few casts. Two days after this a peculiar puffiness of the eyes and face was noticed without other special symptoms.

About noon on June 24, 1905, the boy, who had been as usual on the morning visit, complained of abdominal pain; apparently this was sudden and rather severe. It continued in the afternoon, but at that time the house officer examined him and found no abdominal spasm and nothing definite could be made out except some restlessness. Late in the afternoon there began to be abdominal spasm, the pain continued, and the house physician made up his mind that perforation was probable. Dr. Jackson was notified, and on seeing the boy confirmed the diagnosis. The writer saw him with Dr. Jackson at 9 P.M. Examination showed a small, but well made boy, well nourished. His face was distinctly puffy, expression dull, facies not "peritoneal." He was dull, but irritable on being aroused. The abdomen was much distended, with visible coils of intestine in which no peristalsis could be seen. There was dullness to percussion in both flanks and over the pubes. (There had been dullness in the flanks on previous examinations.) There was extreme tenderness below the umbilicus on both sides. All the abdominal muscles showed much spasm, especially the recti. Respiration much disturbed by the distension, and he could not lie with legs extended. There had been no vomiting. He complained of a good deal of pain, which was now constant and not localized. Pulse 118, good. Temperature, 103.5°. White count, 7,200. The writer concurred in the diagnosis of probable perforation.

It was necessary to wait three hours before obtaining permission to operate. During this time the pulse rose to 130, though still of fair quality.

Operation, ether. Rapid sterilization with soap and alcohol. A median incision was made from near the pubes to just below the umbilicus. There was much thin, cloudy fluid, without odor, in the anterior portion of the belly. The omentum was short and thin and lay above the operation wound in the main. There was extreme distension of the bowels. The first coil which presented was punctured with the trocar and much gas and fluid intestinal contents evacuated. The puncture was closed with a circular Lembert stitch. There were petechiæ here and there on the convexity of the small gut and a few thickened Peyer's patches could be felt. There was some injection of the peritoneal surface and a good deal of fibrin between adherent coils. This fibrin was most plentiful toward the region of the appendix. On continuing the search the appendix presented, and on pulling it up there was a fresh gush of fluid from about its base. The appendix was rapidly removed and the stump ligatured, but on examining the appendix, this proved not to be the seat of the perforation. A coil of adherent gut, which lay below the appendix in the pelvis was then torn loose from its adhesions and brought up. A brief search of this coil showed a Peyer's patch with a clean round perforation in its center about one tenth of an inch in diameter from which fluid intestinal contents were still running. This perforation was found to be not far from the ileocæcal valve — apparently about eighteen inches. The perforation was closed with a circular Pagenstecher stitch. The Peyer's patch was then infolded in a longitudinal line and a few accessory stitches put in to protect the closure of the perforation. The fluid in the pelvis and flanks was then wiped out, and it was found that there was little fluid in the flanks and almost none in the upper abdomen. Lateral incisions were then made through the abdominal wall on both right and left sides, and the abdomen was thoroughly flushed with salt solution, the fluid being kept from the upper part of the abdomen by the pressure of the operator's arm across the belly. Glass tubes wrapped in iodoform gauze were put through each lateral incision down to the pelvis. Wicks were put in both flanks, under the abdominal wall in front, and to the stump of the appendix and the region of the sutured perforation. The median wound was sutured with through and through silk-worm gut sutures except at its lowest portion. A dry sterile dressing was applied. At the close of the operation the pulse was 130, and the boy was in tolerably good condition. From the first incision till the dressing was applied, the operation took seventeen minutes.

No food was given for twelve hours, then albumen water and broth begun. The next morning some gas was passed by rectal tube. There was then much tenderness of the abdomen, but no great distension, no nausea or vomiting, and the general condition was good. The boy seemed mentally brighter than before the operation, and the puffiness of the face was decidedly less. There was much fluid draining from all the openings. An enema in the evening of this day gave good results. In twenty-four hours the glass tubes, which had ceased to drain much fluid, were removed.

June 26, little pain, not distended, tenderness much less, still some abdominal spasm, no nausea or vomiting. The patient is brighter, puffiness of the face is entirely gone. The pulse has dropped to 110, and the temperature since operation has not been above 99.9. No stimulation except digitalis.

The wicks were started after two days. At seven days there began to be some fecal discharge from the wound on the right. During this period there had been no distension, almost no pain, and the abdominal tenderness and spasm had disappeared. The temperature range had been from 98½ to 103°, averaging lower than during the typhoid before operation. All wicks were removed July 6, all stitches out July 8. July 10 the sinus on the left was closed. July 14 marked the closure of the fistula. During this period the bowels were readily controlled by enemata. There was no distension. The evening temperature had fallen to an average of about 99°. Everything seemed to be going well. July 18, however, he had severe pain in the upper abdomen without rise of temperature. There was a return of abdominal spasm, especially on the right side high up, and a sense of resistance over the liver. This point was tender. Flaxseed poultices and the administration of calomel and enemata improved the condition, but the next day there was still definite resistance in the region of the gall bladder and some tenderness, and the liver dullness came about an inch below the margin of the ribs. The white count was 8,000; general condition good. Pulse 100. July 29 he had apparently nearly recovered, but the resistance in the right upper quadrant remained. July 25 there was a fresh attack of pain with distension, which was relieved, as was the first attack, after lasting two days.

July 30 there was another attack, during which reversed peristalsis is said to have been observed. These attacks were apparently brought on by increase of diet. Though there had been no temperature above normal since the 9th of July, evidently there was mechanical obstruction from adhesions. The question of sub-diaphragmatic abscess was seriously considered until, on the first of August, the fecal fistula reopened with considerable discharge of pus and fecal matter. There was prompt subsidence of all symptoms, including the distension. The boy was put on full diet on the 3d of August and showed no further trouble save a slight tendency to constipation and distension. The 16th of August he was allowed to get up, and the sinus promptly closed. August 19, as the boy was becoming "hospitalized," and did not gain in general condition or flesh, he was sent home, with instructions to report about ten days later. He reported, showing an astonishing gain in flesh and strength and there were no symptoms.

February 8, 1906, he was shown at a clinical meeting of the hospital in excellent condition, having, he says, absolutely no symptoms during the interval. He has no constipation, though he still shows a somewhat protuberant abdomen. The scars are perfectly solid with the exception of a single weak point (without hernia) at the site of the fecal fistula.

This case hardly calls for comment. It is reported because the writer feels that such cases should be put on record; operation on these cases is even to-day too infrequent, and lives are lost by too long consideration.

As to technique, but one point seems worth insisting on, namely, that the time of operation and the amount of manipulation be reduced to a minimum. If the operation be deftly and quickly done, it is the writer's belief that it is of little moment whether the technique here described, or Murphy's, or what you will, be employed.

If we can see these cases early, operate early, operate quickly, close the perforation, and drain the abdomen, the percentage of recoveries will continue to improve as it has done in the recent past.

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Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

ETIOLOGY OF ECLAMPSIA.[1]

Many hypotheses have been advanced to explain the nature of eclampsia. The fetal origin of the possible causal toxic substance has been much discussed of late and the fact that lesions identical with those of the mother have been found in the fetus, together with the occurrence of convulsions in the child after birth, are used as an argument in favor of this idea, but there is no evidence to indicate whether the toxins pass from the fetus to the mother or the reverse. The clinical manifestations and morbid anatomy indicate that in all probability there is some toxic substance in the circulation which gives rise to the familiar degenerative changes found in the liver, kidneys and other organs. Wells recently attempted to explain several conditions, closely related in their pathology, such as chloroform and phosphorous poisoning, acute yellow atrophy, septicemia and puerperal eclampsia, by assuming an inhibitory action of the toxic substances in the synthetic processes, thus producing the destructive changes seen in the liver. Experimental evidence, however, of the nature or presence of such toxic substances, is almost totally lacking. Lipmann has found that rabbits, injected with extract of placentæ from cases of eclampsia, rapidly succumbed with symptoms of severe intoxication; while normal placental extract injected into rabbits is entirely harmless. These facts have convinced Lipmann that the source of eclampsia must be sought for in the placenta. How or why the toxic substance originates and its character cannot at present be determined, as it has not yet been possible to isolate it by chemical means. It seems evident that the proper therapeutic measures, reasoning from these conditions, would be immediate delivery and it has been demonstrated that in general this method is more efficient than expectant methods of treatment.

PUERPERAL ECLAMPSIA.[2]

Roger de la Harpe outlines the treatment of eclampsia in the Rotunda Hospital, Dublin, as follows: Half a grain of morphia is given hypodermically, and repeated, if necessary, in quarter grain doses, every two hours, up to the maximum total of 2 gr. in twenty-four hours. When possible, large quantities of water are given to drink, or when this is impossible the water is given by a stomach tube. By this means the stomach is washed out with three or four pints of hot water. Half a pint of water is left in the stomach and to this is added, still through the tube, 2 oz. of castor oil and three or four drops of croton oil. The patient should be placed on her side and a rectal tube introduced and the colon flushed until all fecal matter is removed, about a pint of saline solution being left in the intestine. The patient should now be wrapped in warm blankets and poultices placed about the loins to relieve the congestion of the kidneys. The patient should be kept on her side to facilitate the flow of mucous from the mouth. No food should be given by mouth nor should a gag be employed. When the pulse becomes feeble and rapid, digitalis is injected, and for slow and sighing respiration atropine is given, with saline infusions in very serious cases. The only local intervention permissible is the application of forceps when the head is at the vulva. By following this line of treatment there have been only 12 deaths in 71 cases.

SCOPOLAMINE IN ECLAMPSIA.[3]

Laurendeau recommends the use of injections of scopolamine hydrobromide in doses of one-fiftieth of a grain, combined with one-fifth of a grain of morphine and fifteen drops of fluid extract of veratrum viride, in eclampsia, administered by hypodermic as soon as the patient is seen. The drugs should be injected deeply into the thorax. After an interval of one hour and a half, if attacks continue, repeat the dose. After another hour and a half, attacks being continued, repeat the same dose, less five drops of veratrum viride. Further than this the dosage should not be continued, as it should have done its work by this time. To support this treatment he describes two cases of eclampsia. In the first the labor was completed, but there was headache, slight amaurosis and a large amount of albumin in the urine, with a single attack of convulsions. The treatment was at once resorted to with the result that there was no further convulsions and complete recovery ensued. In the second case the convulsions were of frightful severity, constantly repeated and ending in complete coma. The treatment at once lessened the severity of the attacks, and they ceased entirely after seven hours. Two days later the labor terminated with a normal delivery. After the cessation of convulsions the patient had an attack of mania, which lasted a few hours. The pulse soon shows the influence of the veratrum by becoming softer and slower. The vascular tension is an important factor in the production of the convulsions, combined with autointoxication, and the two result in a hyperexcitation of the nerve centers, which manifests itself by intermittent and involuntary discharges of nervous force. Scopolamine and veratrum respond exactly to the indications, the first calming the nerves, the second lowering the arterial tension.

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[1] Editorial: Jour. Am. Med. Assoc., Mar. 17, 1906; Wells: Jour. Am. Med. Assoc., Feb. 3, 1906; Münch: Med. Wchnschr., 1905, Nos. 15 and 51.

[2] Jour. Obst. and Gyn., Brit. Emp., Feb., 1906; Am. Jour. Obst., June, 1806.

[3] Jour. de Méd. et de Chir., Apr. 14, 1906; Am. Jour. Obts. June, 1906.

ALBUMINURIA OF PREGNANCY.[4]

Besides the albuminuria of a pregnant woman affected with Bright's disease and the albuminuria due to compression of the kidney by the pregnant uterus, there is another variety which Wallich calls "albuminuria from suppuration." The symptoms are polyuria with or without disturbances in micturition, and turbid or purulent urine, but very little general disturbance, no edema nor eye symptoms nor pain in the epigastrium. In the space of two months, recently, he noted this form of albuminuria in 6 out of 15 pregnant women showing albuminuria. He put these patients on a milk diet and administered methylene blue or other disinfectant for the urinary passages. The albuminuria may vanish, while the polyuria and turbid urine may persist, although without fever or other complications at any time during pregnancy and the puerperium. The main point is to decide whether the urinary apparatus is permanently affected; as a rule, it is not.

GASTRIC INHIBITION OF LABOR.[5]

Kehrer is convinced that when the digestive energies of the stomach are taxed much, the force of the uterine contractions is correspondingly reduced. His research has demonstrated this to be a general law, and he discusses the causes for it. One plausible hypothesis is that the hyperemia in the stomach, the consequence of the ingestion of food, diverts the blood from the uterus. This hypothesis is sustained by certain phenomena he has observed in animals. In the clinic he has found that a heavy meal is frequently followed by subsidence of the labor pains. He has found further that if the stomach can be hastily emptied by induced vomiting, the labor pains acquire new energy. These facts confirm the importance of eating lightly as labor is impending. He advises small frequent meals, mostly, if not entirely, restricted to fluid foods. He adds that the rarity, in Germany, of the onset of labor during the afternoon may possibly be explained by the usual heavy noon dinner.

PUBIOTOMY.[6]

Ehrenfest believes that the year 1905 will undoubtedly go down in the history of obstetrics as the year in which pubiotomy was generally recognized as one of the most valuable operations of modern obstetrics. The essential difference between symphyseotomy and pubiotomy lies in the fact that the latter operation accomplishes the temporary severance of the pelvic girdle by a cut through the pubic bone just laterally to the symphysis. He says the present enthusiastic acceptance of pubiotomy by practically all the leading obstetricians of Europe is due to the noteworthy modifications of the original operation which have been suggested by Doederlein. Gigli's original operation consisted of the following steps: In a line running from the middle of the upper edge of the pubic symphysis downwards and slightly outward skin and underlying tissues are incised with the knife down to the bone. After blunt dissection of the tissue adherent to the posterior surface of the pubic bone a Gigli saw is led around and the bone divided in an oblique line corresponding to the oblique skin incision.

Doederlein's merit in the popularization of pubiotomy lies chiefly in the invention of his subcutaneous method. He discarded the long vertical skin incision and substituted for it a short horizontal incision, about 3 cm. long, running along the upper edge of the pubic bone just laterally to the symphysis. There can be no doubt that the subcutaneous methods are rapidly gaining in favor. In the open method, by means of dissection, a canal is opened around the pubic bone. In Doederlein's method, the finger enters through the small horizontal incision and separates the adherent tissue from the posterior surface of the bone. A guide needle is introduced through this canal which finally, just under the lower edge of the pubic bone, is pushed through the skin of the labium majus. The saw is attached to the guide needle and pulled through the canal. Differently shaped needles are used for this purpose, all more or less resembling aneurysm needles. The question whether the introduction of the guide needle from above downward or *vice versa* is more advantageous is still *sub judice*. One of the greatest advantages of pubiotomy over symphyseotomy lies in the fact that the incision does not communicate with the vagina, if by accident a deep laceration of the vaginal wall does not occur.

The idea of leaving the expulsion of the child to natural forces is generally repudiated. Some writers favor the use of the forceps, others version, the former apparently being in the majority It has already been pointed out that a deep laceration of the vaginal wall, which would establish a communication between vagina and the field of operation, is one of the most unfavorable and most dreaded complications of pubiotomy. In general, a forceps seems more liable to produce such an injury. Version, on the other hand, has the decided disadvantage of increasing the danger of a puerperal infection by necessitating the introduction of the hand into the uterus. The great advantage of pubiotomy over symphyseotomy, and also over Cesarian section, is that pubiotomy can be successfully performed even in infected patients. No attempt is made at present to unite the cut ends of the bone by means of a suture. Most operators sew, if possible, the upper incision, and drain through the lower opening if drainage is necessary. Any injury to the perineum is carefully repaired. The simple flannel binder around the hip seems to-day in general use as the only means of keeping the cut ends of the pubic bone in approximation. If no complication arises the patient is kept in bed from two to three weeks.

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[4] Presse Médicale, Paris, vol. xiii, No. 103; Jour. Am. Med. Assoc., March 3, 1906.

[5] Beiträge zur Geb. und Gynäk, vol. x, No. 1; Jour. Am. Med. Assoc., June 30, 1906.

[6] Interstate Med. Jour., Jan., 1906.

The enlargement of the pelvic inlet is greater on the divided side. It has been observed that in flat pelves the transverse diameter increases equally on both sides, while in equally and transversely contracted pelves the transverse diameter shows a comparatively larger increase on the side of the incision. This observation is of considerable practical importance and justifies the demand made by several authors to perform pubiotomy on the side on which the occiput lies, or will lie, if version is contemplated.

(*To be continued.*)

Reports of Societies.

THE MAINE MEDICAL ASSOCIATION.

The fifty-fourth annual meeting of the Maine Medical Association was held in the Common Council Chambers, Portland, Me., June 13, 14 and 15. The various sessions were well attended, and aside from the literary and scientific program, the meeting was one of great interest on account of the Association's action regarding a change of constitution to that proposed by the American Medical Association and the adverse vote that was taken. The matter of reorganization has occupied considerable time at the meetings of the Association for several years. It has been actively pressed by some and actively opposed by others; but, in general, the attitude of the members has been one of indifference. In 1905, after a somewhat protracted session, in which the national organizer of the A. M. A., Dr. McCormack, participated, a committee was appointed, representing all the counties of the state, to prepare and submit to the Association at the 1906 meeting, a constitution drafted on lines favored by the American Medical Association. The failure of the State Association to adopt this plan was in the nature of a surprise for its passage had been confidently claimed and generally conceded.

The literary program included several papers bearing on matters of medical charity, fees, hospital abuse and contract practice, and the members appeared alive to the necessity of action to correct the various abuses under which the profession suffers.

First Day — Morning Session.

The President, **Dr. Randall D. Bibber**, of Bath, called the meeting to order at 9.10 A.M.

Prayer was offered by Rev. H. F. Kloman of St. Stephen's Episcopal Church.

Dr. Walter E. Tobie was appointed official reporter.

The Treasurer, **Dr. Arthur S. Gilson**, read his report showing a balance of two thousand dollars in the treasury. The President appointed as an Auditing Committee Drs. J. L. Bennett, E. J. Marston and Ambrose H. Weeks, who reported the Treasurer's accounts correct.

Dr. Addison S. Thayer presented the report of the Committee on Laws Relative to the Commitment of the Insane, which was laid on the table.

Dr. C. B. Sylvester read the Report of the Visitors to the Maine Insane Hospital. Among other interesting facts relating to this institution, mention was made of two important gifts from the general government. First, the United States arsenal on the Kennebec River, a beautiful park of forty-two acres, with a stone sea-wall and granite wharf, the enclosure being surrounded by an iron fence of costly construction. This property contains thirteen granite buildings and accommodates one hundred and twenty patients of the mild class. The second gift from the government is Widow's Island in Penobscot Bay, which is used to give a two months' summer outing to mild patients of the Maine Insane Hospital and the Eastern Maine Insane Hospital.

Dr. H. O. Curtis, of Topsham, read a paper on

THE GENERAL PRACTITIONER.

Dr. Bigelow T. Sanborn, of Augusta, read a paper on the

CARE OF THE CRIMINAL INSANE,

which favored the placing of this class in a segregated building under the control of the administration of one of the hospitals.

Dr. Ambrose H. Weeks read a paper on

DILATATION OF THE STOMACH.

Dr. A. G. Wiley read a paper on

OBSTETRICS IN COUNTRY PRACTICE.

Dr. George H. Shedd, of North Conway, N. H., read a paper on

CHRONIC LEAD POISONING,

in which he described a number of unusual cases.

By vote of the Association, Dr. Thomas Fillebrown, of Boston, was placed on the retired list, he having reached the three score and ten limit.

First Day — Afternoon Session.

Dr. Alfred Mitchell, dean of the Medical School of Maine, was appointed representative to confer with the Council of Medical Education of the American Medical Association.

The Vice-President, **Dr. Charles D. Smith**, took the chair, and Dr. R. D. Bibber delivered the President's address. The most important recommendations made were: That steps should be taken to have physiology and hygiene taught in the public schools by physicians, and that contract practice should be discouraged among ethical physicians; and committees were appointed to act on these recommendations.

Dr. Edwin M. Fuller reported as delegate to the Boston meeting of the American Medical Association.

Dr. Fred P. Webster read a paper on

A CONSIDERATION OF CARBOHYDRATES IN THE ARTIFICIAL FEEDING OF YOUNG INFANTS,

which considered the relative values in the infant dietary of lactose, sucrose and maltose, the employment of malted and non-malted farinaceous foods, and the needlessness of proprietary farinaceous infant foods.

Dr. C. A. Moulton, of Hartland, read a paper on

PROFESSIONAL ECONOMICS AND THE FEE TABLE,

which excited great interest and called out a very general discussion. Dr. Moulton presented a fee schedule compiled from the reports of over four hundred physicians in the state, and showed that in many cities and towns the rates have not been changed for years, notwithstanding the increase in the cost of maintaining a practice.

Dr. A. J. York, of Wilton, read a paper on the

MANAGEMENT OF THE CHILD DURING THE FIRST YEAR OF LIFE.

First Day — Evening Session.

Dr. F. W. Anthony, of Haverhill, delegate from the Massachusetts Medical Society, was introduced to the Association and invited to take part in the discussions.

Dr. George M. Woodman read a paper on

FUNCTIONAL DISORDERS OF THE NERVOUS SYSTEM FOLLOWING ACCIDENTS.

A paper on

PNEUMONIA,

by **Dr. H. L. Bartlett** was read by Dr. Stanley P. Warren.

Second Day — Morning Session.

Dr. Frank Y. Gilbert read a paper on

EYE-STRAIN.

On motion of Dr. Addison S. Thayer, it was

"*Resolved*, That the proposed Act in Addition to Chapter 144 of the Revised Statutes Relating to the Commitment of the Insane, as published in the Transactions of this Association for 1905, is considered by this Association to be conducive to the interests of insane persons and their families, and is commended to the attention of the legislature of 1907.

"This act empowers a judge of probate to conduct a hearing and commit an insane person upon complaint of relatives or justice of the peace, accompanied by a physician's certificate."

Dr. Stanley P. Warren read a paper on

THE HISTORY OF CESAREAN SECTION IN THE STATE OF MAINE,

including all known cases up to June, 1906. Dr. Warren's conclusions were that Cesarean section is the child's operation and less hazardous to the mother in contracted pelvis than either forceps or version. He recorded twelve cases, a number of which were performed years ago without proper asepsis and under unfavorable conditions.

Dr. Alfred King read a paper on

PROSTATECTOMY,

taking up the various methods, supra-pubic, perineo-urethral and perineal, and recording his own results with these methods.

Dr. H. H. Cleveland, of Auburn, read a paper on

ABUSE OF MEDICAL CHARITY,

which called out a free and general discussion with a view to remedying the existing conditions, one member favoring a somewhat drastic measure in the shape of an appeal to the legislature not to endow hospitals unless their trustees complied with certain regulations. The general feeling among those who discussed the paper seemed to be that the hospitals were engaged in unfair competition with the outside practitioners.

Second Day — Afternoon Session.

Dr. James M. Bates, of Yarmouth, who has been a member of the Association for fifty years, was placed on the retired list.

Dr. J. B. Donovan read a paper on

DISEASES AND INJURIES OF THE HAND.

Dr. H. T. Clough read a paper on

CONSTITUTIONAL TREATMENT IN LOCAL DISEASE, WITH SPECIAL REFERENCE TO DISEASES OF THE EYE.

It was moved: That a committee be appointed to consider the abuse of medical charity and contract practice.

The President appointed on this committee: Drs. S. C. Gordon, Portland; A. S. Gilson, Portland; H. H. Cleveland, Auburn; B. L. Bryant, Bangor; A. H. Sturtevant, Augusta; S. F. Greene, Solon; B. F. Bradbury, Norway; H. B. Palmer, Farmington; W. E. Webber, Lewiston; Hiram Hunt, Greenville.

Dr. S. C. Gordon, chairman of the Committee on Organization of County and District Societies, said that he had no formal report to make, and that the committee was waiting for the action of the Association relative to reorganization. He then moved that the constitution prepared in accordance with the plan of the American Medical Association be adopted.

Dr. F. H. Gerrish said in part: "Why should we abolish a code (of rules) that has answered our purposes excellently for a long period. I have heard several replies to this inquiry. *First*, it is said that under a different code we could have representation in the American Medical Association. But we have representation now — one member of the House of Delegates of the National Society — and we could have no more under a different state organization. *Second*, it is declared that we need an arrangement by which all of us shall be members of the American Medical Association by virtue of our membership in this Association. No state society has this privilege, as far as I have heard, and there seems to be no prospect that the right will be granted to any. At present every one of us can join the American Medical Association on precisely the terms prescribed for members of state associations that have adopted the plan of organization recommended by the national society, namely, by making formal application and paying five dollars. . . . *Third*, it is urged that we should repeal our present laws because they are not framed on the pattern approved by a large majority of the state societies; in other words, we ought to be in fashion. It was officially stated here last year that only Maine and Virginia had failed to change their constitution and by-laws in accordance with the recommendation of the American Medical Association. This statement was not entirely consonant with the facts; indeed, a very important state society — to us the most important in the Union — should have been included in the list of exceptions."

Referring to the statement that Maine and Virginia were the only states that had not adopted the plan, **Dr. Francis W. Goss** (Secretary of Massachusetts Medical Society) says: "This is not correct so far as the Massachusetts Medical Society is concerned. The Massachusetts Medical Society still continues the plan of organization which it adopted more than a century ago. The state society, not the district society, is the 'entity' as it has been styled. Every member is admitted as a 'Fellow of the Massachusetts Medical Society,' and *of necessity* is a member of the district society within whose boundaries he resides.

"If we wish to be in the fashion observed by those members of our profession with whom we are most nearly related, who stand most for progress, who have the most influence in the community, and who vastly outnumber all the remainder, we would do well not to discard our well tried organization.

"In conclusion, to summarize: The rules under which we have long worked are so satisfactory that it is unwise to repeal them except for reasons of supreme cogency; the imperfection in the operation of our rules is due to faulty administration, and not to defects in the rules; the arguments in favor of abolition are of no validity, are, indeed, based upon misconceptions; and if, for any reason, the present laws should be abrogated, it would be unwise to replace them with those proposed, and this because the latter are unwieldy, difficult to admnisiter and too costly in operation."

Dr. Alonzo Garcelon, who has been a member of both the Maine Medical Association and the American Medical Association since their organization, advised the members to be extremely cautious about making a change. He approved of all the members joining the American Medical Association and praised its journal, but believed that certain details of their plan of state organization should be changed.

Dr. Charles D. Smith, for twenty years Secretary of the Association, believed that each state should determine the plan of organization best adapted for its needs, and thought the proposed plan complicated and cumbersome. He believed that the state association should have censorship over its members and applicants. As regards the "man at large" in the profession, he felt that the man who needs to be dragged into a medical society and have professional association forced upon him was not likely to be a very valuable addition, and he did not believe that there were any great numbers of men suffering from lack of opportunity to join the state association. He was favorable to a plan of organization like that of Massachusetts.

Dr. S. C. Gordon favored the new plan. He spoke of the success of the Boston meeting of the American Medical Association and the value of unity. He feared that the Maine Medical Association might lose its delegate if the plan were not adopted.

Dr. Walter E. Tobie, Secretary of the Association, said that in poorly organized states the plan had worked well and increased the membership of the societies, but that in Maine, such a large proportion of the physicians were already members that it would be impossible to make any material gain in membership. He believed that the Association had absolutely nothing to gain by the change, and did not favor taking into the ranks any physicians other than those in good professional standing. A number of men had been dropped in the past for non-payment of dues, and if the new plan were adopted they might be reinstated and their indebtedness wiped out by joining a county society. He felt that these men were not entitled to so easily receive benefits they had valued so lightly in the past.

Dr. B. L. Bryant and Dr. Hiram Hunt favored the change and believed that most of the men in eastern Maine also favored it.

The members then voted by written ballot, it being explained that to carry the motion it must receive a two-thirds vote of all the members present. There were ninety-nine members present. Forty-four voted for the new constitution and forty-five against, and the motion was lost.

The session adjourned, to meet in the evening at Riverton Park, where the annual banquet was held. After the banquet, the oration was delivered by Dr. Charles S. Minot, of Boston, whose subject was: "The Relation of Embryology to Medical Progress."

The final session was held Friday morning, June 15, and was devoted to business.

The following officers and committees were elected: President, Dr. C. E. Williams, Auburn; 1st Vice-President, Dr. Charles D. Smith, Portland; 2d Vice-President, Dr. O. C. S. Davies, Augusta; Secretary, Dr. Walter E. Tobie, Portland; Treasurer, Dr. Arthur S. Gilson, Portland.

Censors: Drs. H. H. Brock, Portland; B. L. Bryant, Bangor; J. D. Cochrane, Saco; E. M. Wing, North Anson; W. L. Haskell, Lewiston.

Publication Committee: Drs. Walter E. Tobie (*ex-officio*), Portland; S. P. Warren, Portland; L. B. Hills, Westbrook; J. W. Beede, Auburn; L. T. Snipe, Bath.

Business Committee: Drs. Daniel Driscoll, Portland; Gilman Davis, Portland.

Entertainment Committee: Drs. H. H. Cleveland, Auburn; W. L. Haskell, Lewiston.

Committee on Abuse of Medical Charity: Drs. S. C, Gordon, Portland; A. S. Gilson, Portland; H. H. Cleveland, Auburn; B. L. Bryant, Bangor; A. H. Sturtevant, Augusta; S. F. Greene, Solon; B. F. Bradbury, Norway; H. B. Palmer, Farmington. W. E. Webber, Lewiston; Hiram Hunt, Greenville.

The meeting in 1907 will be held in Lewiston the first Wednesday, Thursday and Friday in June.

◆

Recent Literature.

Modern Clinical Medicine. Diseases of Metabolism and of the Blood, Animal Parasites, Toxicology. Edited by Richard C. Cabot, M.D., Instructor in Clinical Medicine in the Medical School of Harvard University. An authorized translation from "*Die Deutsche Klinik*" under the general editorial supervision of Julius L. Salinger, M. D. Illustrated. New York and London: D. Appleton & Co. 1906.

The diseases which have somewhat appropriately been termed diseases of metabolism are discussed in this volume by seventeen German clinicians of note. The translation has been made by Dr. Julius L. Salinger, of Philadelphia, and the whole has been edited by Dr. Richard C. Cabot, who justifies the publication of the book in English on the ground that we have in English no discussion of the constitutional diseases which treats with any fulness the problems arising when we consider the *reasons* for what occurs in these diseases. The book makes no claim to exhaustiveness; in fact, many of the conditions discussed are far from complete in their treatment, the object of the writers being rather to discuss certain points instead of, as is too often done, passing the whole subject in superficial review. Among the subjects treated are diabetes, mellitus, gout, obesity, myxedema, Addison's disease, acromegalia, rheumatism and affections of the blood, together with a discussion of the animal parasites of man and important poisons. Among the contributors are Naunyn, Gerhardt, Ebstein, Ewald, Benda, Grawitz, Erhlich, von Leube, von Jacksch. With this array of names commendation of the several contributions is unnecessary. The book is admirably printed and most adequately indexed. It contains but few illustrations.

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THE PRICE OF MILK.

One of the subjects under discussion at the recent meeting of the Massachusetts Association of Boards of Health was the milk problem. With the growth of our ideas regarding medical and surgical cleanliness, the production of milk under ideal conditions has become an exceedingly expensive undertaking. More than ordinary cleanliness of barns, cows, work people and utensils is demanded by the strict requirements of modern hygiene. It has, in fact, been asserted by those best qualified to judge that absolutely pure milk cannot be produced for less than twelve to fifteen cents a quart. Milk which is sold for eight cents, the ordinary market price, may be clean, but there can be no absolute guarantee thereof.

The situation which presents itself, therefore, is the possibility of unhygienic milk at ordinary prices, or the practical assurance of absolutely pure milk at prices which are prohibitive to the rank and file of the population. Milk, however, every family must have, whatever its financial status may be, and a problem is forthwith presented which is clearly difficult of adjustment in the present state of milk production. It has become evident that cleanliness means expense and that to require cleanliness which approaches the ideal is absolutely impossible for the milk producer who sells his product at ordinary market prices. On the other hand, the greatest possible care should be taken not to exaggerate dangers, and not to force upon producers refinements of cleanliness which add to the expense without also adding to the purity of the milk which is sold.

As in all matters, it is certainly possible in this to allow our enthusiasm for the esthetic side of the question to overmaster the practical aspect of the case. There can be small doubt that the whole matter will ultimately adjust itself and that the essentials of cleanliness will be as rigidly insisted upon as the unnecessary refinements are discounted. The agitation is, however, in the right direction; it is not likely that cleanliness will be overdone by the milk producers. The fact remains that the people at large simply cannot pay from thirteen to fifteen cents a quart for this staple article of diet. Naturally, the children are the greatest sufferers, and in our large cities of late years, during the summer months, a vast amount of good has been done through the various milk commissions provided through charity which permit the distribution among the poor of satisfactory milk. Among the more well-to-do classes the payment of fifteen cents a quart for milk is likewise practically impossible, and some means must be found by which a perfectly satisfactory product, even although not produced under absolutely ideal conditions, may be had for a reasonable price. It will be unfortunate if the price of milk is to be permanently raised as has happened with other commodities in this over-civilized age.

◆

A COAL TAR JUBILEE.

Fifty years ago, while attempting the artificial production of quinine, William Henry Perkin, oxidized mauve, the first aniline dye, out of coal tar, which was at that time a practically worthless by-product of the manufacture of illuminating gas.

Many important discoveries have since been based upon his initial achievement. All the colors of the spectrum have been made from coal tar and in the most prodigal manner; whereas formerly the dyer had to depend upon the natural colorings furnished by plants and animals. This industry has become enormous, involving many millions of dollars. The perfume coumarin, which flavors cigars, was evolved by him in the laboratory; whence arose the equally enormous industry in artificial perfumes. From his work were developed the many coloring matters used to make preserved fruits and vegetables appear attractive; materials now essential to the photographic art; and powerful explosives.

The whole of organic chemistry has thus

originated. Many thousands of compounds and medicaments have been evolved — saccharine, so useful in the treatment of diabetes and obesity, which has three hundred fold the sweetening properties of sugar; phenacetin, acetanilid, salol and their congeners; the antiseptics; and remedies possessing wonderful physiological properties.

It is certain that among all these discoveries, which have been based upon Dr. Perkin's work, there are some for which he would not care to be held responsible. For instance, an enthusiast declares: that we shall in the future develop explosives much more efficient than any we have at present; that we shall be able to preserve foodstuffs for any length of time without injury to the health of the consumer (we surely have had enough of such experiments); that we shall produce remedies which will certainly be curative of bacterial infection.

But such things as these are no fault of Dr. Perkin. He should be honored for the vastly preponderating benefits of which he has been the instrument; and preparations to this end are now making very extensively in European cities and in this country. There is to be a veritable jubilee. For America's part, there is to be a celebration in New York in September, under the auspices of the Chemists' Club, which will be attended by many eminent men both in science and in other walks of life. The Perkin medal will then be established; and awarded annually to the American chemist of greatest achievement during the previous year. A national library of chemical books and periodicals will also be maintained, to be situated in New York, with traveling branches throughout the country.

◆

FIGHTING A GOOD FIGHT.

In the recent report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, Dr. Flick again impresses upon us his belief that this disease is contracted mainly in unhealthful enclosures of whatever nature — rooms, flats, hovels, workshops; it is primarily and essentially a house disease. To this view most phthisiologists now subscribe. In living rooms and in factories which are occupied for many hours together, the danger is greatest; in hotels, churches, public halls and vehicles, which are entered but occasionally and for comparatively brief periods, the danger is less.

Moreover, the nature of the implantations must be considered. One implantation may not produce consumption; probably every individual has had at least that. They must be frequent and long continued to result in the disease. On thoroughfares, where sunshine, fresh air and comparatively wholesome conditions obtain, tuberculosis is not to be seriously feared. He who insists upon the contrary is a veritable inciter of phthisiophobia, and is a menace to the peace and the welfare of the body politic. A precise statement made by the Maryland Tuberculosis Commission is in place: " Measures of general public protection, such as the control of promiscuous spitting in street cars and public places, while of course of great value, do not reach the largest source of dissemination of the disease. It cannot be claimed by any student of tuberculous infection that *three per cent* of tuberculous persons have received their infections in street cars or public buildings. Of the infections of reasonably definite origin probably from 90% to 98% take place in the living rooms of those affected, while a further considerable percentage take place in the work rooms."

The workroom and the factory are, indeed, entitled to the gravest consideration. Here the physician and the statesman should work most heartily in harmony. Corvet declares that " the consumptive is far more a source of danger to his fellow workingmen than to his family, especially if his calling be within doors." And in this consideration we would include the schoolroom, for obvious reasons, but especially because the school child may oftentimes be subject to implantations which may remain latent until adolescence. Pulmonary tuberculosis begins to claim its victims about the fifteenth year. School conditions however are now, we are grateful to say, almost universally healthful.

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MEDICAL NOTES.

Association of Hospital Superintendents. — The proceedings of the seventh annual conference of the Association of Hospital Superintendents, which was held in Boston last September, makes a volume of 306 pages. The meeting, it will be remembered, was one of unusual interest and it is a striking tribute to the general interest in hospital management that the association should be able to produce so large and readable a volume of transactions.

Public Bathing in Chicago. — According to the *Bulletin* of the Chicago Department of Health, the total baths given at the free public baths in the first six months of 1906 exceed the total of the corresponding period of 1905 by 70,213, or 24%. The respective totals are, six months of 1905: 291,905; six months of 1906, 362,118. The total males bathed exceed the females by 223,806, or 32%. Of the total males bathed 180,856 were men and 112,106 were boys. The men exceeded the boys bathed by 61%. Of the total females bathed 25,986 were women and 43,170 were girls. The girls exceeded the women bathed by 17,184, or 66%.

American Oncologic Hospital. — The first annual report of the American Oncologic Hospital in Philadelphia for the treatment of cancer and other tumors is in our hands. Young as the institution is, the report shows much activity in prosecuting the work for which it was founded. The names of Drs. Hewson, Massey, Reed, Solis Cohen, Mills and other well known physicians, occur in the list of the medical staff. The aim of the hospital is to attract sufferers from cancer while in a curable stage and is distinguished both from the general hospital, which often does not provide for medical treatment and from the institutions for incurables.

The Harvey Society. — The second annual course of lectures given by the Harvey Society of New York will be opened on October 20, 1906 by Prof. A. E. Wright of London. Ten lectures are to be given during the year, the lecturers and dates being as follows:

Oct. 20, Prof. A. E. Wright; Nov. 3, Prof. C. A. Herter; Nov. 17, Prof. W. T. Porter; Dec. 1, Prof. J. G. Adami; Dec. 15, Prof. George Huntington; Jan. 12, Prof. F. G. Benedict; Jan. 26, Prof. E. B. Wilson; Feb. 9, Prof. S. J. Meltzer; Feb. 23, Prof. W. T. Councilman; March 9, Prof. Friedrich Müller.

It is not to be doubted that the aim of the Society, to diffuse knowledge of the medical sciences, will be admirably subserved by this choice of lectures.

The officers of the Society for the coming year are: Graham Lusk, President; Simon Flexner, Vice-President; F. S. Lee, Treasurer; George B. Wallace, Secretary; and C. A. Herter, S. J. Meltzer and James Ewing, Council.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Aug. 7, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 15, scarlatina 6, typhoid fever 8, measles 4, tuberculosis 25, smallpox 0.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Aug. 4, 1906, was 238, against 234 the corresponding week of last year, showing an increase of 4 deaths and making the death-rate for the week 20.5. Of this number 121 were males and 117 were females; 227 were white and 11 colored; 158 were born in the United States, 74 in foreign countries and 6 unknown; 56 were of American parentage, 156 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 9 cases and 2 deaths; scarlatina, 3 cases and 1 death; typhoid fever, 10 cases and 1 death; measles, 10 cases and 1 death; tuberculosis, 19 cases and 26 deaths; smallpox, 0 cases and no deaths. The deaths from pneumonia were 14, whooping cough 7, heart disease 31, bronchitis 3 and marasmus 14. There were 12 deaths from violent causes. The number of children who died under one year was 76; the number under five years 94. The number of persons who died over sixty years of age was 40. The deaths in public institutions were 68.

There was 6 cases and 3 deaths reported from cerebrospinal meningitis reported during the week.

Tuberculosis Number of the Maine State Bulletin of Health. — The July number of the *Bulletin* of the State Board of Health of Maine devotes itself entirely to the question of tuberculosis, its nature, prevention, curability and treatment. The pamphlet contains much of interest regarding the excellent work being done against the disease throughout the state. Allusion is made to the Maine sanatorium which was opened in 1904 for the reception of persons suffering from the disease in its incipient form. This sanatorium is situated among the Oxford hills in the town of Hebron in a tract of three hundred and twenty acres of arable land, consisting of orchard, pasture and woodland. Speaking of the suitability of the Maine climate in the treatment of the disease, the following statement is made: " For Maine people generally who have met the misfortune of a tuberculous infection, the climate of Maine is the very best there is. For the great majority it is the only climate possibly available. Most consumptives must be cured near their homes, if cured at all. Long journeys are costly, and so is the cost of living and care far from home. For the few, special climatic conditions found elsewhere may be an advantage, but, on the other hand, the cases are pretty numerous which have thriven much better in the climate of Maine than at other places with a wide reputation, previously tried. For the average cases, whether among the poor or the well-to-do, under proper management the climate of Maine is as good as there is for a cure which is to be permanent."

NEW YORK.

Death-Rate. — The death-rate in the week ending July 28 (18.24) was considerably lower than that of any other week during the month. It was also exceptionally low for this season of the year. In the corresponding week of 1905 the death-rate was 20.27, and the average rate for the corresponding week in the past five years was 22. While the number of deaths from diarrheal diseases during this week, 398, was the largest in any week of the month, it was 85 less than in the corresponding week of last year; showing, with the increased population, a very gratifying decrease. The very satisfactory showing in the mortality at this season of the year is attributed by Health Commissioner Darling partly to favorable weather, but more largely to increased food inspection, particularly of fruits and milk.

Mortality during July. — The weekly reports of the Health Department show that the mortality in the city during the month of July represented an annual death-rate of 19.33, as against 15.87 in June and 22.45 in July, 1905. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 24 in June to 15.75 in July; the weekly average of deaths from scarlet fever, from 6.75 to 5.75; from epidemic cerebrospinal meningitis, from 15.75 to 11.75; from pulmonary tuberculosis, from 169 to 143.25; from acute bronchitis, from 15.5 to 14; from pneumonia, from 68.5 to 48.5; and from bronchopneumonia, from 77 to 52. The greatest increase was naturally in diarrheal diseases. The weekly average of deaths from these increased from 105.75 to 363.25. The most of them were in infants, and the weekly average of deaths from this cause in children under five years of age increased from 98.75 to 343.5. Among the other diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 5 to 12; from malarial fevers, from 1.25 to 2; from whooping-cough, from 2.5 to 9.25; from diphtheria and croup, from 24.75 to 28.75; from cancer, from 56 to 61; from organic heart diseases, from 89.5 to 105.5; and from Bright's disease and nephritis, from 101.25 to 104.75.

Canned Meat Scandal at Bellevue Hospital. — There has been a small canned meat scandal at Bellevue Hospital. In the training school for nurses there it is stated that on Aug. 1 the young women ate canned tongue and ham for supper, and that, in consequence some twenty of them were taken ill that night with ptomaine poisoning and rendered unfit for duty. More than half of them recovered, under treatment, within forty-eight hours, but eight were still confined to bed at the expiration of that time, and four were reported as yet on the sick list on Aug. 4. It is only fair to Dr. Armstrong, the superintendent of Bellevue, who has supervision of the diet of the nurses, to say that he has denied that the illness was due to anything furnished by the hospital, stating that those at the training school do not get tainted canned goods for their fare. It would seem probable, therefore, that if the nurses were made ill in the manner alleged, the cause of the trouble was imported from outside.

Bequests to Charitable Institutions. — By the will of Mrs. Amelia B. Lazarus, widow of the well-known artist, Jacob H. Lazarus, who died recently, $180,000 is left directly to charities and art institutions. Of this sum, the Montefiore Home and Hospital for Chronic Invalids is to receive $10,000; Mount Sinai Hospital, $5,000; Trustees of the New York Fire Department Relief Fund, $10,000; Home for the Aged and Infirm Hebrews, $20,000; the Manhattan Eye, Ear and Throat Hospital, $10,000; and the Good Samaritan Dispensary, $5,000. After bequests to a number of relatives, the residuary estate (which is large) is to be divided among the institutions and societies to which the $180,000 is left direct. It is stated that the bulk of this will go to the Montefiore Home, the Home for Aged and Infirm Hebrews, the Mount Sinai Hospital, and the Hebrew Technical School.

Obituary.

WILLIAM PARTRIDGE BRANDEGEE, M.D.

Dr. William Partridge Brandegee, of New York, a well-known laryngologist and aurist, died on July 30 of cerebral apoplexy. He was born in Brooklyn, N. Y., in April, 1864, and was graduated from the College of Physicians and Surgeons, New York, in 1889. He was for a number of years associated in practice with Dr. Edward B. Dench, the otologist, and at the time of his death was assistant aural surgeon to the New York Eye and Ear Infirmary.

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ALEXANDER HUTCHINS, M.D.

Dr. Alexander Hutchins, one of the most prominent physicians of Brooklyn, N. Y., died on July 30 at the age of seventy-one years. He was born in New York City, and was graduated from Williams College in 1857. He began his professional studies at the Harvard Medical School, but completed them at the old New York Medical College, from which he was graduated in 1860. He was an interne at the Almshouse Hospital on Blackwell's Island and later served as assistant surgeon in the United States Navy during a portion of the Civil War. Resigning from the naval service on account of ill health, he began practice in Brooklyn, where he occupied the same office, on De Kalb Avenue, for forty-three years. He was for three terms president of the Medical Society of the County of Kings, and also president, in 1883, of the Medical Society of the State of New York. He was for twenty-five years a visiting physician to the Brooklyn Hospital, and at the time of his death was the senior consulting physician to that institution. He was also consulting physician to St. John's, St. Mary's and the Long Island College Hospital in Brooklyn.

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Correspondence.

APROPOS OF FREIGHT ENGINEERS.

Boston, Aug. 6, 1906.

Mr. Editor: Your timely editorial review of a personal experience with freight trains reminds me of the story of an engineer which is not only interesting but also quite instructive to medical readers.

It plainly shows how little real heroism is involved in some disasters. Perched upon his seat, with his knees bent, this freight engineer was rapidly driving the train along the rail. Suddenly and much to his own surprise, his fireman asked, "How the ——— did you do that?" In reply the engineer then said, "Oh, she is still. Why, I don't know; must have seen a train ahead." He found himself standing upon the floor of the cab, the train at rest, steam cut off, the tracks sanded and the engine reversed.

It was necessary for him to make four separate and distinct mechanical movements. First, to shut off the steam, by closing the throttle; second, to pull the whistle cord for "brakes"; third, to sand the track, and fourth to reverse the engine.

These motions had been made many times in his past career upon the road and had become transformed into automatic reflexes, so that when he saw the flags upon the rear end of the train ahead, he simply acted automatically and unconsciously. A Chinese proverb says, "We must do quickly what there is no hurry for; to be able to do slowly what demands haste."

Truly yours,

E. D. Spear, M.D.

RECORD OF MORTALITY

For the Week ending Saturday, July 28, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,452	677	Quincy	7	5
Chicago	542	202	Waltham	10	6
Philadelphia	557	244	Gloucester	4	1
St. Louis	—	—	Pittsfield	8	3
Baltimore	232	112	Brookline	5	—
Cleveland	—	—	North Adams	7	2
Buffalo	—	—	Chicopee	13	8
Pittsburg	—	—	Northampton	7	1
Cincinnati	—	—	Medford	3	1
Milwaukee	—	—	Beverly	3	—
Washington	—	—	Hyde Park	2	2
Providence	81	37	Newburyport	—	—
Boston	211	80	Leominster	2	—
Worcester	45	21	Melrose	—	—
Fall River	46	32	Woburn	4	2
Cambridge	25	13	Marlborough	—	—
Lowell	50	29	Westfield	—	—
Lynn	20	8	Peabody	—	—
New Bedford	26	19	Revere	7	4
Springfield	23	13	Clinton	2	—
Lawrence	19	14	Attleboro	5	4
Somerville	13	3	Adams	—	—
Holyoke	19	10	Gardner	—	—
Brockton	15	5	Milford	6	1
Malden	10	1	Weymouth	1	1
Salem	13	4	Framingham	14	—
Chelsea	16	7	Watertown	1	1
Haverhill	12	3	Plymouth	—	—
Newton	2	—	Southbridge	8	1
Fitchburg	12	10	Wakefield	—	—
Taunton	12	3	Webster	—	—
Everett	8	6			

SOCIETY NOTICE.

American Association of Obstetricians and Gynecologists. — The American Association of Obstetricians and Gynecologists will hold its nineteenth annual meeting at the Hotel Havlin, Vine Street, between Fifth and Sixth Streets, Cincinnati, Thursday, Friday and Saturday, September 20, 21 and 22, 1906. The fellows of the Association residing in Cincinnati constitute the committee of arrangements, of which Dr. Charles Lybrand Bonifield, 432 West Fourth Street, is the chairman, and Dr. Magnus A. Tate, Vindondissa Building, is the secretary, either of whom will furnish information to members and guests upon application.

BOOKS AND PAMPHLETS RECEIVED.

The Prophylaxis and Treatment of Internal Diseases. Designed for the use of Practitioners and of Advanced Students of Medicine. By P. Forchheimer, M.D., New York and London: D. Appleton & Co. 1906.

American Oncologic Hospital. For the Treatment of Cancer and other Tumors. First Annual Report for the year ending December 31, 1905.

Choice of Methods in the Treatment of Operable Cases of Cancer. By G. Betton Massey, M.D. Reprint.

A Lecture on Dendrites and Disease. By Sir William R. Gowers, M.D. Lond., F.R.S. Reprint.

Clinical Lectures on the Borderland of Epilepsy. Vertigo. By William R. Gowers, M.D., F.R.S. Reprint.

Manual of Anatomy, Systematic and Practical, including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Glas. Vol. I. Illustrated. Chicago: W. T. Keener & Co. 1906.

Thirty-Sixth Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces in Michigan for the Year 1902. Lansing, Michigan. 1906.

Transactions of the Association of Hospital Superintendents. Seventh Annual Conference held at Boston, Mass., Sept. 26, 27, 28, 29, 1905. Vol. VII.

Original Articles.

TWO CASES OF GASTROSUCCORRHEA OR GASTRIC HYPERSECRETION ASSOCIATED WITH ATROPHIC CIRRHOSIS OF THE LIVER.*

BY HENRY F. HEWES, M.D., BOSTON,

Physician to the Out-Patient Department of the Massachusetts General Hospital.

I wish to report to you two unusual cases of gastrosuccorrhea or hypersecretion of the stomach. The special points of interest in connection with the cases were the following:

(1) The cases represented, in their special symptomatology, the history of the symptoms and the character of the findings revealed by the examination of the contents of the stomach, typical cases of gastrosuccorrhea, one of continuous hypersecretion, the other of intermittent or periodic hypersecretion; and this stomach symptomatology represented, at the time the cases first came under observation, the prominent and only definite symptoms present.

(2) The special pathological conditions of the stomach, with which hypersecretion such as was present in these cases is ordinarily associated, that is, which most frequently prove to be the primary causes of hypersecretion, gastrectasis, or ulcer of the stomach, were not present in these cases. This fact was proven in the first case, that of continuous hypersecretion, by the findings at autopsy in addition to the results of clinical examination. In the second case it was indicated by the results of clinical examination.

(3) The pathological condition of cirrhosis of the liver was present in both cases. In the first case atrophic cirrhosis of advanced degree was found at autopsy. In the second case the diagnosis of cirrhosis was based upon the finding of an enlarged liver plus the marked alcoholic history of the patient.

As you know, disturbance of the stomach, usually of a general or indefinite character, sometimes including morning vomiting sometimes hematemesis, is a common associate of liver cirrhosis. These two cases are, however, the only instance of which I have a record in which the stomach manifestations presented the definite symptom complex of gastrosuccorrhea, or at least where the existence of such a symptom complex has been determined or recorded. There are cases reported of hyperchlorhydria with some hypersecretion associated with cirrhosis. These cases are, however, cases of hypersecretion, not cases of hyperchlorhydria.

The first case was one of continuous hypersecretion, or Reichmann's disease. The existence of atrophic cirrhosis was determined at autopsy. The record of the case is as follows:

The patient, a male, age fifty-two, was first seen by me in November, 1904. Up to about a year previous to this date the patient had considered himself a well man. At this time, about December, 1903, he began to be troubled with what he called dyspepsia. The only symptoms of this dyspepsia consisted of a sense of discomfort in the stomach coming on three or four hours after the morning meal and lasting more or less all day. There was a sense of fullness and some swelling of the abdomen, with much eructation of gas; no vomiting. The bowels, which had previously been regular, became constipated. Coincident with, or soon after the appearance of, this dyspepsia the patient noted loss of strength, loss of appetite, and a loss of flesh gradually appeared.

From this time on the symptoms of stomach trouble increased in severity. At the start the dyspepsia was intermittent, appearing by spells of a week or two, with periods of comparative freedom of from two to four weeks. As time went on the symptoms became continuous, and severe attacks of pain in the stomach and occasional vomiting occurred. During the last two or three months the pain had been very severe at times, beginning with a dull ache early in the day and increasing until late in the day or in the night, when it became severe and vomiting usually occurred with temporary relief of pain. Of late, vomiting had occurred daily two or three times a day. It occurred more commonly late in the day or at night, but some times came in the morning before he had eaten. Pain and vomiting were not especially connected with the taking of food. He vomited quite as frequently when on a limited diet, and as often four hours after a meal as directly after. Food never relieved symptoms. There was some water brash and regurgitation. The fluid raised was not especially acid as far as the patient could observe, but felt like pure water.

The vomitus consisted of large quantities, often a quart or so of greenish colored, very watery material. In some instances it contained no food, especially when it occurred in the morning. No blood had been noted in the vomitus.

There had been great loss of flesh and strength, shortness of breath on exercise. The secretion of urine had been small. There had never been œdema of the legs.

The past history of the patient contained little data which had any apparent bearing on the present condition, excepting that he had been a moderate drinker for thirty years. He had used tobacco freely. He had never had syphilis.

The record of physical examination was as follows: Patient of a dusky pale color and much emaciated. Hemoglobin, 65%; red corpuscles, 4,900,000; white corpuscles, 4,600; coagulation of blood rapid. Temperature, 98.4°; pulse, 100, small. Lungs negative. Heart normal in size and sounds. Abdomen was rather full compared with the general emaciation of the body. There was no ascites. Some enlargement of veins of wall. Liver dullness extended from the seventh rib in right nipple line to within a half inch of costal border. The edge could not be felt. The spleen was not palpable, but large to percussion. There were no glands and no tumors to be felt. The arteries were somewhat sclerosed at the wrists. There was no œdema of scrotum or legs. Reflexes were normal. The urine was concentrated and contained the slightest possible trace of albumin and no sugar. The sediment contained a rare hyaline cast, an occasional epithelial cell and red blood corpuscles. The contents of the stomach, expressed by tube in the morning after a fast of twelve hours, showed the following characteristics:

Quantity, 2,000 cc. The character was that of a dirty, greenish colored, watery fluid. A moderate quantity of solid matter, which consisted principally of green flakes of amorphous matter, was present. No food remnants which could be recognized as such by the microscope were present. The quantity of micro-organisms yeast, bacteria, was small. The contents had an acid reaction. Free HCl was present. The quantity was 0.03%. No lactic or other organic acid was present. The total acidity was 0.08%. No blood was present by the guaiac test. The fermentation test was negative. Inflation of the stomach showed the lower border about one half inch below the navel. The top border was normal. The stomach appeared as rather a large stomach.

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* Read at the annual meeting of the American Gastro-Enterological Association at Boston, June 4, 1906.

The patient was given a Leube test meal and the contents expressed at the end of eight hours. The character of the contents was as follows:

Quantity, 480 cc. Color greenish; consistency watery, with a moderate sediment. The sediment contained a rare starch granule, a fat globule. Free HCl was present. Total free HCl was 0.08%. Total acidity was 0.18%.

The clinical picture of this case was, as you see from the records of the history and clinical examination, characteristic of the condition of continuous hypersecretion of the stomach. The emaciation and debility of the patient were extreme, but as you know, this extreme condition is seen in chronic hypersecretion, and, if we omit the tendency to enlargement of the veins of the abdominal wall, there was nothing in the general picture which did not go with the diagnosis indicated by the record of symptoms and physical finding connected with the stomach. The cause of the condition of hypersecretion could not be determined at the time. Of the common causes, stasis and ulcer of the stomach, stasis was excluded by the absence of food remnants in the fasting contents and the character of the contents obtained after the test meal. The large amount of fluid contents is not in itself an evidence of stasis as the autopsy finding in this case proves.

There was no direct evidence of ulcer either in the history or in the physical findings. The low quantity of free hydrochloric acid in the gastric contents did not favor the existence of this condition as a cause of the hypersecretion. There was no hyperchlorhydria such as is sometimes associated with hypersecretion.

The condition is said to occur as a neurosis independently of any discoverable pathological lesion in the stomach or elsewhere in the body. Whether or not we were dealing with such a condition in this case could only be surmised. The extreme emaciation of the case suggested carcinoma of the stomach. I have, however, no record of a marked hypersecretion such as was present here found in association with cancer of the stomach not associated with stasis.

Six weeks later the patient died. The symptoms subsequent to my observation did not differ from those recorded. The autopsy showed atrophic cirrhosis of the liver. The stomach was intact as far as regards any lesion such as cancer or ulcer. No microscopic examination of the stomach tissues was made.

The completed records of this case thus demonstrate the coincident presence of atrophic cirrhosis of the liver and continuous hypersecretion of the stomach, the first condition being demonstrated at autopsy, the second by clinical investigation. Whether the association of the two pathological conditions present in this case was direct or accidental, that is, whether the cirrhosis can be in any sense considered as a cause of the stomach symptom complex, or whether the latter was due to some other cause operating coincidently, is, of course, an open question. Continuous hypersecretion is ordinarily considered as a secondary condition. It has been observed in association with conditions of obstruction of the pylorus or of hypomotility of the stomach where stasis of food contents existed, and in association with ulcer of the stomach. It is said to occur in cases where no local lesion of the stomach exists, where it is considered to be a manifestation of a neurosis, similarly to the more common condition of hyperchlorhydria with which hypersecretion is not uncommonly associated. The condition is apparently a secondary or symptomatic one, not a definite disease condition *per se*. It has no definite pathology. In some cases of the disease an infiltration of the stomach wall, with cellular changes not unlike those of gastritis, has been found.

In favor of the general conception of a direct connection of a cirrhosis and the stomach hypersecretion, the cirrhosis being a cause, we have the knowledge, familiar to all students of medicine, that the occurrence of disturbance of the stomach is a common associate of cirrhosis of the liver. These stomach manifestations in cirrhosis are, as a rule, of moderate severity, consisting of anorexia, distress after eating, eructations of gas, the ordinary symptoms of dyspepsia. In some cases abnormality of the secretion, consisting of an increase or a decrease of hydrochloric acid, more frequently the latter, and in some cases chronic gastritis, have been observed. In rare instances hemorrhage into the stomach and hematemesis resulting from the rupture of the veins of the stomach, which are distended and engorged as a result of the portal obstruction induced by the cirrhosis, occurs. In stomachs seen at post mortem examination or during operation in cases of cirrhosis a hyperemia of the stomach walls has been observed.

With these facts in mind, it is conceivable that a cirrhosis should, through the same means which are active in producing these stomach disturbances commonly seen in this disease, presumably the congestion of the organ and the action of toxins formed as a result of the disease, induce in the stomach of a particular individual the special form of disturbance known as hypersecretion. This is especially conceivable when it is remembered that several cases of hyperchlorhydria have been reported in cirrhosis, for hyperchlorhydria, the secretion of an excess of acid, and hypersecretion, the secretion of an excess of gastric juice, are closely allied phenomena often occurring together and due to several causes.

In favor of the view that the cirrhosis was a cause of the hypersecretion in this particular case we have, beside the association of the two conditions, the absence of other commonly accepted discoverable causes of hypersecretion, pyloric obstruction or ulcer of the stomach as disclosed by autopsy findings, and of stasis of any kind, as disclosed by clinical investigation. The conception of a connection between the two conditions in the other direction, the long standing hypersecretion serving as a contributing cause to the cirrhosis, has, as far as I know, no facts of medical observation to support it. It is not suggested by the history of this case.

The second case which I have to report is one of intermittent or periodic hypersecretion. The existence of cirrhosis in this case is based upon the finding of an enlarged liver combined with the alcoholic history of the patient. The patient is still alive. The record of the case is as follows:

The patient, a bartender, age forty-four, was first seen by me in February, 1905. For about a year previous to this time he had been having acute attacks of stomach trouble, alternating with periods of well being. The symptoms of the attacks were as follows: Following a period of well being the patient would be seized with severe pain in the stomach, followed by vomiting. Following this for a period of one to three weeks there would be constant nausea with frequent vomiting, distaste for food, excessive thirst. The vomiting, as a rule, followed the ingestion of food in an hour or so, but some times came in the early morning or long after eating.

The vomitus consisted of large amounts, was watery and acid. It had never contained blood. At the start of the attacks the pain was very acute and relieved temporarily by the vomiting. The pain was at the pit of the stomach and beneath the sternum, never in the right side. There had been no jaundice. The first attack which occurred lasted one week. The patient was then perfectly well for three months, and then had a second attack lasting two weeks. Following this there was a period of well being lasting two months and then the present attack. There was loss of flesh during an attack and a reestablishment in the intervals. The patient had been a steady drinker. No special occasion for the advent of the attacks could be discovered. He was frequently drunk during the intervals of well being. He denied syphilis. The condition of the patient at the time of my visit was as follows:

Well developed; color, good; hemoglobin, 100%; temperature normal; pulse 80; heart and lungs normal; abdomen full; no ascites; no enlargement of veins of abdominal wall. Liver dullness extended from sixth rib nipple line to two inches below costal border. Edge palpable and symmetrical. Spleen not palpable. Arteries were normal to the touch. Reflexes normal.

The contents of the stomach, expressed in the morning after a twelve hours' fast, had the following characteristics:

Quantity, 500 cc. Character, watery with very little sediment. No food was present. Free HCl present; quantity was 0.12%. Total acidity, .14%. No lactic acid. No blood by guaiac test. Inflation of stomach normal.

The contents expressed, two hours after an Ewald meal, had the following character:

Quantity, 250 cc; Consistency purely liquid. No food was present. Free HCl, 0.22%. Total acidity, .28%.

The attack of stomach disturbance in which I saw the patient lasted three weeks. It was followed by a period of comparative well being. During the latter period the patient suffered from dyspeptic symptoms consisting of distress after eating, eructation of gas. There was no vomiting, and the patient considered himself as well as usual. The contents of the stomach obtained during this period expressed one hour after an Ewald meal, showed the following character:

Quantity, 150 cc. The proportion of supernatant fluid was rather greater than normal. Total free HCl was .16%.

Three months from the time of my first visit the patient had an acute attack similar to the one described lasting two weeks. Since then he has had two similar attacks. The size of the liver remains practically the same.

We have here a case of periodic or intermittent hypersecretion associated with liver cirrhosis. The cause of the attacks cannot be definitely determined. They may be due to acute irritation of the stomach from indulgence in alcohol. Local stomach causes, as stasis or ulcer of the stomach, can apparently be ruled out by a consideration of the results of clinical investigation. How far the cirrhosis is a contributing cause is a matter of surmise. The case, however, serves as a second example of the association of cirrhosis and gastric hypersecretion.

THE SERUM TREATMENT OF EXOPHTHALMIC GOITRE.

BY G. A. WATERMAN, M.D.,

Assistant in Neurology, Harvard Medical School; Assistant Visiting Physician to the Out-Patient Neurological Department, Massachusetts General Hospital.

Since the first recognition of exophthalmic goitre as a distinct disease by Parry in 1825, and later by Graves and Basedow, various theories as to the cause of the condition have been advanced.

The symptoms were early attributed to pressure on the cervical vessels and nerves by the enlarged gland. Later, the theory of disease of the cervical sympathetic was advanced. On account of emotional upsets being a frequent cause of the disease, many considered it to be a functional disorder of the nervous system, allied to hysteria. Blake, Thompson and others have advanced the idea that the symptoms are due to auto-intoxication from the alimentary canal, while others have maintained that the cause of the disease lies in a disturbance of the medulla.

The generally accepted theory at the present day, however, and the one upheld by Moebius, is that the symptoms of the disease are caused by excessive secretion of the thyroid gland. In favor of this hypothesis is the evidence that, (1) in most cases of exophthalmic goitre the thyroid gland is enlarged; (2) that partial excision of the gland in patients suffering from the disease so often results in a cure and (3) that the administration of thyroid in sufficiently large doses to healthy individuals may give rise to most of the characteristic symptoms of the disease. In experimenting on animals, too, these symptoms have been artificially produced. Edmonds[1] by treating dogs and monkeys, with thyroid, found that he could bring on exophthalmos, tachycardia, loss of weight and sweating, while Murray [2] observed a similar result from feeding the gland to rabbits.

The methods of treatment for exophthalmic goitre have annually increased in number since the first recognition of the disease, and we constantly see cases reported which have been favorably influenced by some new remedy. Among the most popular may be mentioned arsenic, iodide of potash, bromide of quinine, phosphate of soda, and intestinal antiseptics. Electricity, in the form of faradism and galvanism, and the x-ray, have been of undoubted value in the treatment of this disease, and partial extirpation of the gland, though a dangerous operation, has given rise to many cures.

Accepting, however, the theory of hyperthyroidization as the cause of exophthalmic goitre, the rational method of treatment would seem to be that of serum therapy, by which we could introduce a substance to neutralize the harmful products of excessive thyroid secretion, or by which we could make use of a cytotoxic serum which has a selective, destructive action on the secreting cells of the thyroid gland alone.

Following along these lines, Ballet and Enriquez,[3] in 1895, at the Congress of Alienists and Neurologists at Bordeaux, published their results of the use of serum of thyroidectomized dogs, which was given in doses of 5 to 15 c.c. with beneficial results.

In 1899, Burghart [4] published the results of his work with Blumenthal, in which they treated a case with the modified blood of a myxoedematous patient, with temporary improvement. In the same paper they described the use of liquid serum of thyroidectomized dogs in one case, and the dried serum in two cases, all three cases showing improvement.

In 1901 Moebius [5] described the use of serum of thyroidectomized sheep in the treatment of three cases with beneficial results. To this serum he gave the name of antithyroidin.

In 1902 Schultes [6] reported a cure in a case treated by the same method.

In 1903 Moebius [7] reported two more cases treated by his antithyroidin with improvement and stated his preference for this method over the use of "Rodagen," which he had also used. At this time he also made known the use of the dried blood of thyroidectomized sheep.

In 1903 Lepine [8] brought forward the theory that a true antitoxic serum, like the diphtheritic antitoxin, should be derived from animals immunized to large doses of thyroid gland. He fed to goats larger and larger doses of sheep's thyroids and found that their tolerance could be much increased, so that, eventually, a serum was obtained, which, on being injected into dogs, produced somnolence, slowing of the pulse, and increase in weight.

In 1904 Murray [2] gave his results from the use of this method. He fed to rabbits increasing doses of a thyroid preparation for a month and used the serum from these animals in the treatment of two cases of exophthalmic goitre. The results, however, were disappointing, although some improvement was manifest.

In 1903 Adam [9] reported a case successfully treated with antithyroidin, in which the symptoms returned when the treatment was stopped but again disappeared on the readministration of the serum. Rosenfeld [10] also reported a case treated about this time, but did not state the degree of improvement. Saniton and Pisante,[11] in 1904, described three cases treated first with blood and then with serum of thyroidectomized sheep, one attended with a permanent cure and two with amelioration of symptoms. In the same year Leyden [12] reported good results from the use of serum and blood of thyroidectomized sheep but stated that he did not consider this method superior to the use of "Rodagen." At this time Josionek [13] also reported two cases treated by the serum given by the mouth. Both patients were improved but one more than the other, and Josionek considered this due to the fact that treatment was instituted earlier in the disease.

In 1905 Kuh [15] described the cases of eleven patients treated with the serum of thyroidectomized sheep, all of whom were improved in varying degrees; and later Mix [14] reported excellent results in two cases. Later, in 1905, Hallion [16] made known his preference for the use of the whole blood, preserved in glycerin and given in doses of one to two teaspoonfuls daily. He believed that the active principle lies more in the corpuscles than in the serum and stated that Enriquez had adopted this method, giving increasing doses so that three tablespoonfuls were eventually given in a day. Durig and Lomer [17] have also recently each reported a case and Alexander [17] reported three cases treated by the serum of thyroidectomized sheep, all of which were benefited, but none cured.

The experience of the writer in the use of serum treatment of exophthalmic goitre is illustrated in the report of the following cases. The serum used in the treatment of these cases was derived from blood drawn from the jugular vein of the goat two weeks or more after the removal of the thyroid gland. It was invariably used subcutaneously.

Case I is that of a girl eighteen years old. In the fall of 1902 she was subjected to an unpleasant experience which caused her considerable mental shock. A month later she began to notice that her collars were tight on account of a swelling in the throat, and about this time her friends called attention to the unnatural prominence of her eyes. At this time she suffered from insomnia, vomiting, palpitation, sweating and tremor. She was given the rest cure for three months, but without improvement. She then went into the country, where she improved to a certain point, but when seen by the writer she had been in about the same condition for a year. There was marked exophthalmos; the thyroid was symmetrically enlarged; the pulse varied from 130 to 150, and there was a pronounced fine tremor of the hands and head. The patient was about her daily duties, but was nervous and easily tired. The serum treatment was begun in May, 1904, and for three months she had doses of 1 cc. given subcutaneously about five times a week. During this period the patient's symptoms steadily improved, and there was a gradual lessening of all the physical signs, so that the exophthalmos and tremor had practically disappeared. The thyroid was no longer visible and scarcely palpable and the pulse ranged about 120. During the next three months the serum was given in 2 cc. doses about twice a week with continued improvement in the patient's condition. There remained no trace of the tremor and thyroid enlargement and the eyes regained their natural expression, while the pulse ranged about 90. From this time she had 3 cc. of serum every eight or ten days for two months, and now for a year and a half has remained free from signs of the disease, and with a constant pulse of 70 to 75.

Case II is also that of a girl eighteen years of age She was first seen in June, 1905. She had always been delicate in health and easily tired, but during the year previous to her treatment she had seemed unnaturally weak, so that a walk of two or three blocks fatigued her. She had first noticed an enlargement of the thyroid in March, 1905, and for this she had been treated by Dr. T. M. Rotch, who had given her the dried blood of thyroidectomized goats for three months, but without benefit. At the time serum treatment was begun, examination showed a slight degree of exophthalmos, moderate enlargement of the thyroid gland and a pulse of 100. There was, however, no tremor and no special irritability, but she complained of sweating, backache, and a constant sense of fatigue. This patient was given daily doses of 2 cc. of serum for a week, with no apparent change in her condition, except that a general urticaria resulted. The treatment was then suspended for two weeks, at the end of which time she was given daily doses of 1½ cc. for a period of two weeks. This resulted in a diminution in the girth of the throat of 1¼ in. The pulse was constant at 90 and the exophthalmos had disappeared. The serum was then given in 3 cc. doses once a week for two months, and once a month for three months. It is now six months since the treatment was stopped and the patient shows no signs of the disease, has gained in weight and feels better than she had felt since she can remember. She takes walks of three and four miles without special fatigue and is as well able to attend to her social duties as her sisters are.

Case III is that of a girl who, since childhood, had always been sensitive and high strung and subject to seizures of hysterical laughter and crying from slight emotional upsets. For many years she had had an irritable heart, and palpitation had been a source of annoyance to her. She had also been troubled with excessive sweating for some years, but as it was only a year and a half before the serum treatment was begun that she applied to her physician, on account of a tremor of the hands which was so marked that in drinking she was obliged to hold the glass with both hands. It was at this time that her attention was first called to the prominence of her eyes and to her goitre. The serum treatment was begun in this case in June, 1905. At that time there was marked exophthalmos and tremor, moderate enlargement of the thyroid and a pulse rate varying from 140 to 155. Doses of 2 cc. of serum were given four times a week for two months, with marked improvement of all her subjective symptoms, a diminution in the size of the thyroid, a drop in the pulse to 120, a decrease in the tremor and a marked lessening in the prominence of one of the eyes. The treatment has been continued for eight months, being given every eight to ten days, and still keeps the patient in this improved and comfortable condition, though on several occasions when she has gone two or three weeks without the serum, she has felt more nervous and has suffered from palpitation. It is interesting to note in connection with the prolonged treatment in this case that the hair has become dry and brittle and is turning gray.

Case IV is that of another young woman, twenty-six years of age, who had always been and was still of a nervous and hysterical temperament. At the time the serum treatment was instituted she had suffered for two years from tremor and palpitation. Examination showed a moderate enlargement of the thyroid and exophthalmos. Her hands were tremulous and her pulse was 120. She was given ten doses of 2 cc. of serum in the course of thirty days, which resulted in the disappearance of the thyroid enlargement, some slowing of the pulse and an improvement in the general symptoms. For various reasons the treatment was not continued beyond this, and the patient in the course of two months lapsed into her former condition.

Case V is that of a woman forty-one years old, who, for fifteen years, had had goitre, exophthalmos, tremor, palpitation and sweating. She had always been able to keep about, but had suffered much of the time from nervousness and palpitation and occasional attacks of diarrhea which were difficult to check.

Examination at the time serum treatment was begun (in the winter of 1905) showed marked exophthalmos and goitre. The hands were moist and tremulous; the heart showed hypertrophy of the left ventricle, and a cardio-respiratory murmur was heard over the whole precordia; the pulse was 110.

She was given the serum in 2 cc. doses twice a week for three weeks, and daily for seven days. At first there was a slowing of the pulse to 80 beats a minute, with a cessation of the attacks of palpitation which had previously come daily. The last few days, however, the pulse again rose to 100 and the palpitation returned. The treatment was not continued beyond this point.

The writer has also tried dried blood of thyroidectomized goats, given in doses of 5 gr., two or three times a day in a number of cases, but has never seen beneficial results from its use.

Of the five cases here reported, we may consider two as cured, two improved and one unimproved. This number alone is, of course, insufficient for estimating the value of this method of therapy, and we must remember that many methods of treatment advocated for this disease have given results fully as favorable in a few cases, but in the long run have proved disappointing.

Looking over all the cases that have been reported in which the serum treatment has been employed, one cannot help feeling that we have in it an agent which *does influence* the disease favorably, and *may*, with further modification, prove of more uniform value. It may be along this line or by the use of the cytotoxic serum, which has been evolved by several investigators, and so successfully used by Beebe and Rogers,[18] as was recently reported in their admirable paper, that we are to find a specific means of relieving the distressing symptoms of a most troublesome disease.

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INTRODUCTION TO THE STUDY OF THE FUNDAMENTAL CAUSE OF SPLANCHN OPTOSIS — ABDOMINAL INCOMPETENCE: A DEVELOPMENTAL FACTOR.

BY AGNES C. VIETOR, M.D., BOSTON.

(Concluded from No. 6, p. 145.)

OUTLINE OF EVOLUTION OF SPECIFIC HUMAN ABDOMEN.

Correlated with evolution of pelvis, thorax and extremities; especially with extension, adduction and forward rotation of the lower extremities, so that the patella and toes point forward.

The final distinguishing characteristic of the human genus is the full extension of the lower extremities in the plane of the vertical trunk, the dorsal and ventral surfaces of which tend constantly to approach each other in approximately parallel planes.

This extension of the lower extremities upon the vertical trunk

(*a*) Removes the support of the erect (sitting) pelvis from the abdominal viscera.

(b) Removes the support of the flexed thighs which supplement the erect pelvis in supporting the abdomen.

(c) Adds forward rotation of the pelvis and anterior convexity of the lumbar spine; both of these conditions throwing the viscera forward and so facilitating their descent, directly through gravity and indirectly by increasing the stress on the supporting anterior and posterior abdominal walls, and so impairing the supporting power of these walls.

(d) Alters the conditions of respiratory equilibrium, because whatever affects the supporting power of the walls of the abdomen affects the action of the diaphragm, which latter is only another abdominal wall — the superior wall or roof.

If these various changes are not counterbalanced by compensatory changes in the anterior and posterior abdominal walls, they lead to further visceral displacement.

Soon after the enclosure of the viscera by the body walls, the four extremities appear. Whether viewed as outgrowths of, or additions to, the body wall, these extremities are, throughout the vertebrate series, more or less bound to this body wall by muscles and integuments. This connection of the extremities with the body wall decreases as one rises in the animal series till in their highest development these extremities become specialized to nearly complete independence of the trunk; the latter serving only as a fixed point upon which all the more highly specialized movements of the extremities are based. This fixed point is utilized through the large muscles which pass from the trunk to the extremity. And these connecting muscles require a certain amount of trunk stability to furnish a point of departure for their activities.

In proportion as the evolution of the extremity is imperfect or incomplete, clinical observation shows that stress upon it is carried backward to its attachment to the trunk; and if this attachment is deficient in strength or coördination, the stress is carried still further backward, and the body wall itself strives to make up for the insufficiency of the extremity to the demand made upon it. In this manner may be produced abdominal incompetence, visceral ptosis and deformities of the spine, pelvis, thorax, and even of the other extremities, since insufficiency of the body wall may be further conveyed to these.

Examples of this will be given later. It is mentioned here because it is a manifestation of a law which seems to explain the action which insufficiently developed (in strength or coördination) extremities, both upper and lower, but especially the lower, have in causing visceral ptosis, this being one of the most common causes of this affection.

The converse of this is also observed. The circle of insufficiency and deformity may begin with abdominal incompetence or visceral ptosis, causing inefficiency of the trunk as a point of departure for developing activities of the extremities, leading to inefficiency or imperfect development of these extremities.

Those portions of the body wall which make up the abdomen are easily and early involved in attempts to compensate for weakness of the extremities.

If the abdominal walls have developed competence, they aid the body wall in meeting these demands, and the stress is met.

If the abdominal walls have not developed competence, they share in the stress, and are, by so much, diverted from their function of supporting and retaining the viscera. In this way, varying degrees of visceral ptosis are due to weakness of the extremities or of other portions of the body wall. The converse of this is also observed, as already noted.

EFFECT OF ABDOMINAL INCOMPETENCE ON THE MECHANICS OF RESPIRATION.

Clinical observation shows two main types of respiration:

(1) This may be called the *anterior* type. The abdomen is incompetent; the diaphragm and inspiring lungs make marked downward and forward excursion into the abdomen, displacing

the viscera downward and forward, the viscera are also displaced upward and forward; the sternum rotates on its superior extremity, upward and forward, carrying with it its attached ribs; the bony thorax grows shorter and broader in the anterior plane, its anterior wall moving upward and forward towards the horizontal; backward expansion of the trunk is diminished or may be absent; the ribs move forward and upward, they move outward very slightly, except in their anterior third or half; expiration becomes increasingly inefficient.

These changes in the thorax anteriorly lead to two main types of changes posteriorly: (*a*) The posterior wall of the thorax attempts to parallel the anterior wall; the ribs retract posteriorly, and an increased lumbo-thoracic anterior convexity appears. In the supine position, this forward and upward rotation of the whole thorax may be seen with each inspiration. This type of respiration is favored by the conformation of the trunk, especially when the lower extremities are extended, since the anatomical paths leading to it may be developed at term. (*b*) The tendency towards (*a*) is antagonized by a slight lumbar anterior convexity and a slight forward rotation of the pelvis; and in such patients the attempts of the posterior wall of the thorax to parallel the anterior, leads to hyperextension of the thoracic spine, or lumbo-thoracic junction, or upper lumbar spine.

This change appears to be the physiological one, developing spontaneously in the healthy child beginning to stand and walk alone.

(2) This may be called the *posterior* type. The abdomen is competent; the whole posterior wall of the trunk moves backward in inspiration, backward and upward, and backward and downward; the lateral walls move backward and outward, as well as upward and downward; there is relatively slight excursion of the diaphragm and inspiring lungs downward and forward into the abdomen, and this occurs mainly in the upper zone or epigastrium; the sternum and ribs tend to rotate upward and forward, but this tendency is antagonized by the downward and outward pull of the abdominal muscles, and by the backward as well as the outward, and upward and downward pull of the posterior and postero-lateral walls; this tends to make the anterior wall approach a plane more or less parallel with the posterior.

The predominant forward and upward and forward and downward movement of the anterior type is now translated into a backward and upward, and backward and downward movement. The outward movement of the antero-lateral planes has become translated into an outward movement of the postero-lateral planes.

In the anterior type the anterior wall models the trunk; in the posterior type, the posterior wall models it.

At birth, respiration is modified by all the factors enumerated and by many others. It is therefore struggling and incoördinated.

On the whole, it most nearly approaches the anterior type; but the advanced stage of development of the back muscles, and the supine position strongly favor the efforts towards the posterior type which steadily gains.

As soon as the sitting position is assumed, the pull of the viscera and the stress on the back, which is struggling to support the trunk in the vertical plane, again favor the anterior type.

When the sitting is changed to the standing position the stress is still greater, and the anterior type becomes increasingly easier. Nevertheless the struggle towards the evolution of the posterior type is always present. The result is the development of many variations of combinations of both types.

ANATOMICAL AND PHYSIOLOGICAL VARIATIONS PREDISPOSING SOME OF THE VISCERA TO DISPLACEMENT; AND THE RELATION OF THIS PREDISPOSITION TO CERTAIN FREQUENT PATHOLOGICAL CONDITIONS.

Experiments and dissections show that abdominal incompetence opens the anatomical paths for the production of displacements of the abdominal viscera, leading to conditions making for repeated traumatisms, through the action of gravity, and of traction of the viscera on each other and on the connecting peritoneal folds which contain the nerves and blood and lymph vessels.

These observations support the clinical hypothesis that abdominal incompetence is the primary factor in the development of the common surgical diseases of the upper abdomen — the stomach, duodenum, gall bladder and bile ducts, jejuno-ileum, pancreas and kidneys (especially the right), being the most important viscera affected.

SPONTANEOUS TENDENCY OF THE TRUNK AND EXTREMITIES TOWARDS THE DEVELOPMENT OF SUCH STRUCTURAL VARIATIONS AS ARE CALLED PATHOLOGICAL; DEVELOPMENTAL DEFORMITIES.

Dissections show that at birth a lumbo-sacral anterior convexity is present; that an anatomical condition of spontaneous flexion, adduction and outward rotation of the lower extremities (thighs) is present; that the lower extremities and the pelvis are united at such an angle that in proportion as the lower extremities (thighs) are flexed, etc., the lumbo-sacral anterior convexity is reduced to a minimum or successively obliterated and converted into an anterior concavity; that in proportion as the lower extremities (thighs) are extended, adducted and rotated forward, the lumbo-sacral anterior convexity is increased and extended through (1) forward rotation of the united pelvic bones and sacrum, and (2) through the attachment of the fifth lumbar vertebra to the sacrum and ilia, the supraincumbent lumbar (or even the thoracic) vertebræ are carried into anterior convexity, proportionate to their mobility.

For the relation of the postnatal modification of these conditions to the evolution of the trunk and the developmental deformities enumerated, as well as the details of the above-mentioned visceral experiments, dissections and clinical observations, the reader is referred to the following articles by the writer.

(1) Introduction to the study of the prenatal evolution of the abdomen, with special reference to the status at term. Report of Research Fellowship of the Society of Lying-In Hospital of New York, 1903–04 (*in press*).

(2) Introduction to the study of the postnatal evolution of the abdomen (*in preparation*).

(3) Clinical study of abdominal incompetence and visceral ptosis (*in preparation*).

EVOLUTION TOWARDS TWO MAIN TYPES OF HUMAN FIGURES, DEPENDING UPON VARIATIONS IN THESE CORRELATIONS.

Type 1. *Broad lower thorax; slight lumbo-sacral anterior convexity; slight forward rotation of pelvis.*

Type 2. *Retracted lower thorax; marked lumbo-sacral anterior convexity; marked forward rotation of pelvis.*

This type must be considered pathological — a variety of developmental deformity. It presents a retraction of the trunk walls, with a proportionate degree of visceral ptosis en masse — a condition which predisposes to various forms of individual visceral ptosis.

Correlations towards which each type tends: In abdomen, thorax, lower extremities, respiratory mechanics and specialized activities.

According as an equilibrium among the factors enumerated is reached by one or other varying paths of compensation, study of the ascent of the trunk to the vertical plane, and the extension of the lower extremities in the plane of this trunk, shows a spontaneous development of two main types of the human figure.

These types are suggested in the higher mammalia, but they are fully developed in the human being.

The fundamental difference between these two types appears in that portion of the trunk between the thoracic cavity and the heads of the femora — the abdomen and pelvis. In this region the prominent points of differentiation between the two types are the lower thorax; the lumbo-sacral spine, including its sacral expansion, the pelvis; and the posterior, lateral and anterior muscle walls of the abdomen and pelvis.

Broadly speaking, what may be called the basic or primary type of figure is represented by a broad lower thorax, a slight anterior convexity of the lumbar spine, a slight anterior inclination of the pelvis, and in selected cases, a competent abdominal wall. The simplest variant of this type has the abdomen incompetent but the back unaffected. The next simplest variant shows an incompetent abdomen, with hyperextension of the lower thoracic spine, of the lumbo-thoracic junction, or of the upper lumbar spine.

Again, broadly speaking, what may be called the second type of figure is represented by a more or less retracted lower thorax, a more pronounced anterior convexity of the lumbar spine, extending up into the thoracic spine, an increased anterior inclination of the pelvis, and usually a more or less well-developed incompetence of the abdominal walls.

All grades of variations of these two types of figures are observed, including exaggerations of the tendencies of both; including also transitional figures showing passage from one type to the other.

These variations all resemble each other in that the equilibrium attained is very unstable, and, therefore, these variations are constantly interchanging details to a greater or less extent.

The first mentioned type appears to be basic or primary because it is always present at birth and in early life; because it is the type towards which the greatest number of figures tend; because it is found most often in strong and robust individuals; and because the equilibrium of this type is, as a whole, the most stable.

The second type appears to be the variant, secondary, aberrant type because it is never present at birth or in early life; because it is produced from the basic type at a subsequent age; because it is most often found in individuals with a weak musculature or presenting other evidences of weakened or poor nutrition. Furthermore, it tends spontaneously to approach the basic type whenever nutrition is improved, general muscular activity increased, and when certain arbitrary conditions are removed, leaving the figure to the spontaneous modeling of all the muscles. On the other hand, the equilibrium of this type is very unstable; it tends constantly to vary under slight variations in the correlative factors mentioned, and to pass readily into such pathological variations as result in what are called deformities.

Clinical observation shows that competence of the abdominal walls increases throughout childhood, and in selected cases is complete before the age of puberty. It also shows the relation of competence of the abdomen to the development of the rest of the body walls and the extremities. It is well-established that during this period of development deformities of the spine, thorax, pelvis and extremities appear, and the evidence at present accumulated seems to show that these deformities develop along the lines just described.

Further, this evidence seems to the writer to justify the addition to the list of developmental deformities of the added ones of round shoulders; modifications of weak foot, including *pes planus;* antero-posterior and lateral curvatures of the spine; retracted lower thorax; marked lumbar anterior convexity; marked forward rotation of the pelvis; abdominal incompetence and visceral ptosis — both *en masse* and *individual.*

These are developmental deformities because, within physiological limits, there is a spontaneous tendency to their occurrence in the efforts of the individual to correlate the varying factors enumerated.

To sum up:

The body of the individual at any given time represents a moment of equilibrium in the struggle towards attaining competence of the abdomen, with the consequent retention of the viscera in position, in a vertical trunk whose dorsal and ventral surfaces tend constantly to approach each other in approximately parallel planes; this trunk being supported on two lower extremities which are extended in the same vertical plane, this extension being accompanied by adduction and forward rotation, so that the patella and toes point forward.

This struggle may be tending, along the paths indicated, towards the attainment of an equilibrium which makes for relative stability and the release of energy in the form of specialized activities of the various regions of the body.

Or, it may be tending, also along the paths indicated, towards compensations for failures to reach this relatively stable equilibrium. These compensations result in types of figures which may be merely unstable variants of the basic generic type; or the structural variations may be so pronounced as to be called deformities.

The existence of so many separate factors and the number of natural laws simultaneously at work make it impossible to trace the origin of a given deformity in each case without having a detailed life record of the individual. Many of the deformities are, when first observed, of the nature of cicatrices, their initial cause having disappeared in the presence of growth changes, or being obscured by later growth changes. But the further back into childhood one carries one's studies and the greater the number of observations which one accumulates, the more the evidence points to the existence of the fundamental laws already formulated.

On the whole, type (1), the broad lower thorax type, tends towards the development of the following correlations:

(*a*) Increasing competence of the abdomen.

(*b*) Predominance of backward and upward, and backward and downward, as well as outward expansion of the trunk, during inspiration, with increasing inspiratory capacity and increasing expiratory efficiency.

(*c*) Greater proportionate increase of transverse than antero-posterior diameters of trunk.

(*d*) Pelvis maintains its affiliations with the trunk. Lumbo-sacral anterior convexity tends towards a minimum and the pelvis shows slight anterior rotation. During weight-bearing, lower extremities tend to maintain extension at hip and knee, and feet tend to maintain such an angle of dorsal flexion as leads to ascent of the forefoot to the horizontal plane of the heel.

(*e*) Independence of action of trunk and extremities; trunk tends to such stability that it furnishes only a point of departure for developing the activities of the extremities, with a minimum participation in such activities; extremities tend to develop such independence of action that their call upon the trunk is minimized.

(*f*) The conservation of energy following the foregoing increases the power of resistance of the individual, and favors growth and development. Hence, as this type is approached, the individual displays vigor and stability.

On the whole, type (2), the retracted lower thorax type, tends towards the development of the following correlations:

(*a*) Retarded or uncompleted competence of the abdomen.

(*b*) Predominance of forward expansion of the trunk during inspiration, forward and upward, and forward and downward, with decreasing inspiratory capacity and decreasing expiratory efficiency.

(*c*) Less proportionate increase of transverse over antero-posterior diameters, and tendency to proportionate increase of antero-posterior over transverse, especially in the abdomen.

(*d*) Pelvis tends to increased forward rotation. Lumbo-sacral anterior convexity tends to increase. During weight bearing, lower extremities tend toward flexion at hip and knee, and feet tend toward extension so that the plane of the heel is higher than that of the forefoot.

(*e*) Trunk and extremities tend toward interdependence. Trunk is in condition of unstable equilibrium, and shares largely in the activities of the extremities. There is retarded or unattained independence of the extremities; the activities of the extremities are hampered by the lack of the stable point of departure required by voluntary muscles.

(*f*) The unnecessary expenditure of energy following the foregoing decreases the power of resistance of the individual, and favors a condition of habitual overstrain which depreciates powers of growth and development. Hence, as this type is approached, the individual displays weakness and instability.

CONCLUSIONS.

Fundamental cause of splanchnotosis is abdominal incompetence.

In their highest development, the abdominal walls not only contain the viscera, but also retain them in position, against gravity and other displacing forces. The abdomen may then be said to be competent. Competence of the abdomen is a developmental factor; stage of evolution with which human race is at present struggling; earlier phases can be traced backward through vertebrate series and in human prenatal life.

Distinctive characteristic of human genus not the erect trunk, nor even the erection of the trunk on two hinder or lower extremities, but distinctive human characteristic is the full extension of the lower extremities in the plane of a vertical trunk, the dorsal and ventral surfaces of which tend constantly to approach each other in parallel planes; this extension being accompanied by adduction and forward rotation, so that the patella and toes point forward.

Development of abdominal competence correlated with evolution of this extension, adduction and forward rotation of the lower extremities. At birth, abdomen is incompetent, and lower extremities (thighs) are flexed, abducted and rotated outward. Postnatal evolution of lower extremities in direction of extension, adduction and forward rotation tends to be completed in early childhood, but is an unstable possession, and in a large number of cases never fully attained; in another large number of cases is attained but after varying periods of time, more or less reversion to the condition found at birth occurs; tendency to this reversion always present, but becomes more pronounced with approach of fourth decade and beyond. Postnatal evolution of abdomen in direction of competence proceeds throughout infancy and childhood, and, in selected cases, is complete at or before puberty. Very unstable possession; in majority of cases never fully attained; even when attained, tendency to reversion to condition of more or less incompetence constantly present; tendency becomes more pronounced with approach of fourth decade and beyond.

This instability of abdomen and lower extremities exists at the present day in the most primitive as well as the most civilized peoples, and its existence can be traced among all peoples as far back as pictorial history extends.

Development of abdominal competence also correlated with postnatal evolution of abdominal viscera. Evolution of viscera always incomplete at birth; considerable evidence to show that in many cases never completed.

Development of spine, lower extremities, thoracic cage, and even upper extremities and head, correlated with development of abdominal competence, and *vice versa*. Variations in these correlations result in spontaneous grouping of body forms along two main paths: (1) Basic or primary type of figure, represented by broad lower thorax, slight anterior convexity of lumbar spine, slight anterior inclination of pelvis. (2) Secondary or aberrant type of figure, represented by retracted lower thorax, pronounced anterior convexity of lumbo-thoracic spine, increased anterior inclination of pelvis. Abdominal incompetence and visceral ptosis in both types. Variations in the correlations enumerated show a spontaneous tendency of the trunk and extremities towards the developmental deformities: round shoulders, lateral and antero-posterior curvatures of the spine; modifications of weak foot, including *pes planus;* retracted lower thorax, marked lumbar or lumbo-thoracic anterior convexity; marked forward rotation of the pelvis; abdominal incompetence, and visceral ptosis — both *en masse* and *individual*.

Experiments and dissections support the clinical hypothesis that abdominal incompetence is the primary factor in the development not only of splanchnoptosis, but also of the common surgical diseases of the upper abdomen, the stomach, duodenum, gall bladder and bile ducts, jejuno-ileum, pancreas and kidneys (especially the right) being the most important viscera affected.

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The Chicago Isolation Hospital has had no patients since July 18, when the last of the 19 smallpox patients discovered since Jan. 1 was discharged.—*Journal A.M.A.*

INCONTINENCE OF THE URINE.

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The involuntary discharge of urine is normal in the young infant. It becomes a voluntary function at a later age, the time depending largely upon the child's training. In most children with the right kind of management it may be controlled during the waking hours by the tenth month. During sleep it continues to a later period and while in many cases it may be under perfect control, at the completion of the second year I do not regard the loss of control as abnormal until the third year is completed. If during the second year the child shows a tendency to frequent urination and involuntary passage of urine during the waking hours with habitual incontinence at night, it is my custom to advise preventive measures.

In some of these children the urine is very acid and of a high specific gravity — 1,020 or over. In such cases, a reduction of the highly nitrogenous food stuffs in the diet, especially meat and eggs is often followed by improvement, — the eggs and red meat being given not oftener than every second day, alternately. Where the urine is normal, the quantity of fluids given during the twenty-four hours is reduced from 25% to 50% and more solid nourishment substituted.

When the incontinence persists during the waking hours at the completion of the second year, or during sleep at the completion of the third year, the condition is regarded as abnormal and the child placed under treatment.

In assuming the care of a child with incontinence our first step is to discover the cause of the trouble. With this object in view the patient is examined with the idea of discovering any peripheral abnormality which may have a bearing on the disorder. Thus the incontinence may be due to a vaginitis, or to an adherent clitoris in girls, or to phimosis in boys; it may be due to thread-worms in the rectum, to constipation, to stone in the bladder, to cystitis, — a very rare condition, — and to hyperacidity of the urine, — a very common one. The diet may play a part. The use of highly nitrogenous food in large amounts, or a diet rich in sugar may lead to changes in the urine sufficient to cause the trouble. The presence of adenoid growths in the nasopharyngeal vault is supposed by some writers to cause enuresis.

As a result of the diurnal and nocturnal incontinence, the bladder may never have developed and its capacity may be greatly reduced. Obviously, when such is the case, incontinence will be noted both day and night.

After all possible dietetic and peripheral causes have been eliminated, about 90% of the cases remain. These are due to a neurosis, and are not dependent upon any discoverable pathological condition. There is a lack of development, a weakness of the vesical sphincter and a lack of co-ordination of those portions of the sympathetic nervous system which control micturition.

If due to peripheral causes they must be corrected and the general physical condition of the child improved, although in my experience the delicate and chronically ailing are not the children who suffer most. By far the greater number of my patients have been well-nourished children who were otherwise normal. Long-continued incontinence does not appear to affect the general health. When well established, the condition untreated, usually continues until the child is eight or ten years of age. I have known of a few cases which had persisted until puberty.

If no improvement follows the removal of all possible dietetic and peripheral causes, we must assume that we have an idiopathic incontinence to deal with. If the case is of several months' or years' standing, with nightly incontinence, once, twice, or three times, we must acquaint the mother with the fact that prolonged treatment will in all probability be required, and that unless her active and continued co-operation is assured, the treatment of the case will not be undertaken.

To show how untiring must be our efforts, a recital of an early experience with twelve inveterate bed-wetters may not be without interest. Several years ago, while resident physician at the New York Infant Asylum the patients, nine boys and three girls ranging in age from six to ten years, were selected for treatment. All were in fair health. No local cause for the enuresis could be discovered in any of them. They had been through the usual treatment with strychnine, belladonna and other drugs without improvement. They had always been bed-wetters. All wet two or three times during the night, and three once or twice during the day in addition. The oldest, a boy of ten, with incontinence by day and night, pronounced incurable had been returned to us from the West, where he had been sent by the Children's Aid Society.

The patients were put to bed at seven o'clock and wakened at ten, to urinate. The medication suggested below, was used. Physiological symptoms of atropia occurred in three in the form of a typical belladonna blush and excitement. After six weeks of treatment, there was slight improvement in four. One or two nights a week would be passed without bed-wetting. At the end of the third month the lapses were but once or twice a week. Seven were well at the end of the fifth month, rarely wetting the bed. The treatment was continued two months longer when the dose was reduced one half, again continued for two months and then stopped and nine months after final discontinuance, there had been no return. The remaining five, all over six years of age and including the girls, showed but slight improvement after the fifth month of treatment, the incontinence being of almost nightly occurrence. During the next three months, the improvement was gradual and at the end of the eighth month, incontinence occurred not oftener than twice a week, and during the tenth month, it was only occasional. The dose was reduced one half and after one year of continuous treatment, there was no return of the trouble. The atropia was stopped and after six months, the cure was apparently completed.

These cases need not cause discouragement, as they were inveterates, all over six years old, the oldest ten. They had always wet the bed and had resisted all previous treatment. Frequently a treatment of from four to six weeks, even a shorter time, effects a cure. The child receives three meals daily. The breakfast and dinner correspond to the age of the child, but one should emphasize the fact that red meat is to be given but once during the twenty-four hours. The supper, which should not be later than six o'clock, I designate a " dry supper." It may consist of any cereal, such as rice, hominy, farina, or wheatena, served with butter and sugar. If this is not well taken a small quantity of both sugar and milk may be added. Permissible articles for the evening meals in addition to the above are, ice cream, milk toast, blanc-mange, raw fruit, jelly, stewed fruit, bread and butter. Meat, eggs, or heavy foods of any kind should not be given at night. At four o'clock in the afternoon the child is given as much water as it wishes, but no fluids after this are allowed other than a little milk on the cereal. The absence of all fluids after 4 P.M. will at first be a hardship for some children and they may be allowed a small quantity, — three or four ounces of milk or water, with the evening meal, but this quantity is gradually diminished until at the end of a week it will not be missed.

The child should be as lightly covered at night as comfort will permit. There is less tendency to incontinence if the child rests on its side or stomach. Sleep in this position should be encouraged. In inveterates, where every possible aid is brought into use, I have used the knotted towel as a means of keeping the child off its back. A knot is tied in the middle of the towel. It is then passed around the child so that the knot will rest on the back. If it is long enough the ends of the towel may be pinned together over the abdomen like an abdominal binder. When the child attempts to rest on the back the knot causes discomfort and the position is changed. At 10.30–11 o'clock when the person in charge retires, the child should be taken up to urinate.

Drugs: Without a strict observation of the above measures, particularly those referring to diet and the absence of water after 4 P.M., drugs are of no value, whatever their method of administration. With the above suggestions carried out, we have one remedy which is of great value, and that is belladonna. For convenience of administration I prefer the alkaloid, atropia. To get the full benefit of the treatment in severe cases it must be pushed till we obtain the physiological effect as shown by a slight dilatation of the pupils. Before beginning the treatment it is well to advise mothers that a redness of the skin need cause no alarm, but when it is noticed to discontinue the drug until further instructions are given. The atropia is administered as follows: One grain is added to an ounce of water; one ounce of water contains approximately 500 drops, so that one drop of the atropia solution would contain approximately 1–500th of a grain of the drug. The mother is given a chart containing the directions for administration, for a child five years of age it is as follows:

	4 P.M.	7 P.M.
1st day	0 drop	1 drop
2d "	1 "	2 "
3d "	2 "	2 "
4th "	2 "	3 "
5th "	3 "	3 "
6th "	3 "	4 "
7th "	4 "	4 "
8th "	5 "	5 "

The child is given one drop daily at 4 and 7 P.M. for every year of its age. Thus, for a child three years old the dosage should not be greater than three drops twice daily; for a child six years old not over six drops twice daily would be given. It may be well if the case is not under close observation to make a more gradual increase in the dosage so as to avoid the possibility of unpleasant physiological effects.

It is never advisable to exceed these doses even in older children, for the reason that the enuresis will be controlled, or the dilated pupil and the belladonna blush will indicate that more must not be given.

The tolerance for atropia varies considerably, although children usually bear it very well. Now and then a child is treated who can not take over two drops, 1–250th of a grain daily. To one boy eight years of age but 1–200th of a grain could be given twice daily. Pronounced benefit, ordinarily, will not be observed during the first week or two of treatment. If the child suffers from incontinence while awake, this will first be cured. The improvement in nocturnal incontinence is more gradual and may be considerably delayed. Thus, no improvement whatever may be seen for two or three weeks. In the cases cited above it will be noticed that in three no improvement occurred until the sixth week. In the average case the improvement is gradual. Instead of wetting the bed every night there will be nights at intervals of a few days when there will be very slight incontinence, or none at all. After a few weeks' treatment the incontinence entirely ceases. The mistake frequently made is to stop the atropia at this point. When this is done there is usually an immediate return. The full treatment should be continued until the child has ceased wetting the bed for at least two weeks, when the daily amount of atropia should be reduced one half and kept at this point for six weeks. If, at the end of two months from beginning treatment, there is no incontinence the drug may be discontinued, but the dietetic regulations, particularly the "dry supper" should be given for three months longer. It must be remembered that the element of habit, which had become established, is hard to overcome, even after the neurosis and the sphincter weakness has been corrected. Strychnia and tincture of cantharides have been advocated by pediatric writers. In weak, poorly nourished children strychnia may be added to the iron or oil tonics, and as a tonic, be of service in improving the general condition of the patient and indirectly be an aid in the treatment of the enuresis. When incontinence occurs only during the day, the dietetic regulations are the same, with the exception that the fluids allowed need not be curtailed unless the quantity is excessive. The dosage of atropia is the same, but the time of administration should be changed to after breakfast and after luncheon instead of at 4 and 7 P.M. In addition to the atropia, strychnina should always be given in cases of incontinence by day, as a lack of development of relaxation of the sphincter is more of a factor with them than is failure of co-ordination in the nerve supply.

A fact to be taken into consideration in making a prognosis as to the duration of the treatment in a given case is the size of the bladder, since a child who has suffered from incontinence both by day and night may have a small and contracted bladder because of lack of development from disuse. In one of my cases, in a girl five years of age, the bladder had a capacity of but one ounce. The most reliable means of determining the size of the bladder is by measuring the amount of sterile water introduced through a catheter.

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Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

(Concluded from No. 6, p. 155.)

HEART DISEASE AND PREGNANCY.[7]

A great diversity of opinion exists as to the significance of heart disease in pregnancy. Some hold that this complication is one of extreme gravity, others that it is of comparatively slight importance and may be readily controlled by timely and appropriate treatment. A certain knowledge of the possible ill effects of this condition has also spread among the laity, and anxious inquiries regarding the outcome are usually addressed to the attending physician by the family and friends. It is often a difficult matter to render a prognosis in any given case, and the uncertainty which exists with respect to this question may, perhaps, be traced to the fact that most observers have failed to recognize any distinction between the various forms of cardiac lesions in their relation to the pregnant state. The importance of this is shown in a lecture by Tuszkai of Budapest. He is led to propose a grouping of these cases with reference to the prognosis as follows: In the first group may be included those cases in which the cardiac lesion was present before the woman became pregnant. Here the prognosis is in general very bad. In the second group may be gathered those cases in which the disease of the heart, previously in a latent state, has been awakened to activity by the pregnancy. Women suffering from an arteriosclerosis or those who have been afflicted with any of the infectious diseases shortly before the pregnancy began, are particularly liable to the complication noted. The diagnosis in these cases will be simplified by a knowledge of such a previous disease and the fact that the cardiac symptoms developed only during the latter months of pregnancy. The prognosis in this class of cases depends entirely on the severity and character of the original disease, being either very good or very bad. In the third group may be included those cases which present cardiac lesions peculiar to pregnancy. If the other two classes can be excluded, the diagnosis is not difficult. In this class belong the slighter forms of heart trouble, which are essentially of a functional character, and therefore furnish a favorable prognosis, the disease usually subsiding promptly after delivery.

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[7] Editorial: Med. Record, N. Y., Feb. 17, 1906.

A FACTOR IN PERINEAL LACERATIONS.[8]

Shipps believes that violent and uncontrolled expulsive efforts of the mother just prior to the birth of the child are a most important factor in the causation of perineal lacerations. The patient is worn out with the exertion which she has been making for hours, and which she believes to have been futile. She is anxious to see the end of her sufferings, and, listening to the advice of her friends, she uses all her reserve force and strains with all the energy of which she is possessed. Too short a time is given, as a rule, for the physiologic softening and stretching of the tissues. He encourages the woman in labor, assuring her that though the pains she is suffering are apparently accomplishing little they are, in fact, surely preparing the way for the birth of the child. He, moreover, warns her of the approach of the period just prior to the delivery, when all bearing down efforts must cease. The integrity of the perineum remains intact in proportion as control over the last expulsive efforts of the patient is secured, anesthesia being a most valuable ally when the necessary coöperation of the patient cannot be secured.

THE AMNIOTIC FLUID.[9]

Experimentation upon animals and certain clinical observations have a long time ago established the fact that the amniotic fluid is chiefly a transudation from the maternal blood. It is extremely probable that only in later stages of pregnancy fetal urine is secreted and voided into the amniotic sac. This conception of the origin of the amniotic fluid has of late been confirmed by investigations of Gruenbaum into the respective moleculary concentration of maternal and fetal blood. It was suspected that the epithelial covering of the amnion may play an important part in this process of transudation and Mandl has now actually succeeded in demonstrating distinct morphologic peculiarities in the amniotic epithelium which do not permit any doubt concerning the active function of this epithelium in the production of the amniotic fluid. Bondi simultaneously, but independently from Mandl, made studies in the same direction and came to identical results. Polano who, a few years ago, as the result of biologic investigations has advanced the theory of such an excretory action of the amniotic epithelium is convinced of the reliability of Mandl's and Bondi's observations and their interpretation.

MATERNAL IMPRESSION SUPERSTITION IN AMERICA[10]

Bacon says there is a surprising tendency in America toward a credulous acceptance of the old superstition in regard to maternal impressions, and that the retention of the same in modern textbooks is hardly complimentary to responsible authors. Aside from the discredit to the medical profession, the continuance of the superstition leads to two evils, either of which should rouse us from our careless and unscientific attitude. First, it has a maleficent influence on antenatal pathology, — many instructive cases of fetal disease and deformity having been lost to science because the observer has been interested only in finding a far-fetched resemblance of the morbid fetal conditions to some animal, and has overlooked all anatomical or pathological details. Secondly, the prevalence of the superstition tends to cause much unnecessary anxiety and dread to expectant mothers. The duty of the physician to protect and shield his patients from this anxiety is clear and this duty should be emphasized by the leaders and teachers of the profession.

INHERITANCE OF TUBERCULOSIS.[11]

Bossi's article is a contribution from an obstetrician to our knowledge of tuberculosis. He examined large numbers of placentæ and of fetuses from women with tuberculosis, supplementing his research by experimental work. He found that it was a very rare exception when the Koch bacillus was transmitted to the fetus from the parents during its intrauterine existence. The toxins of tuberculosis may be transmitted. They seem to accumulate in the placenta and to pass thence into the fetus. The toxins thus transmitted are responsible for the defective development and organic weakness noted in such children. They favor infection during early infancy.

SIMULTANEOUS UTERINE AND EXTRAUTERINE PREGNANCY.[12]

Vineberg believes that this condition is not as rare as the literature would lead us to believe. He reports two cases, both ending in recovery, but both of which presented exciting features, and he believes that certainly one patient would have died on the table had he failed to recognize the unusual condition and to act with promptness. He believes that every case of supposed early uterine abortion should be looked upon with suspicion, and unless the case is an especially clear one, and not requiring any surgical intervention, the patient should be anesthetized as early as possible. This is to be done first, for the purpose of making a careful and thorough examination to exclude an ectopic gestation, and secondly, for the purpose of performing a proper curettage under satisfactory aseptic precautions.

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[8] Med. Record, N. Y., Feb. 17, 1906.

[9] Ehrenfest: Interstate Med. Jour., Jan., 1906.

[10] Surgery, Gynecology and Obstetrics, March, 1906.

[11] Arch. f. Gynak, vol. lxxvii, No. 1. Jour. Am. Med. Assoc. March 3, 1906.

[12] New York Med. Jour., Feb. 24, 1906.

He also adds that in every case of uterine miscarriage that shows abnormal symptoms after emptying the uterus, the probability of an associated extrauterine pregnancy should be considered, and likewise after an operated case of extrauterine pregnancy, should there be an undue persistence of uterine bleeding, one ought to think of the probability of an associated uterine pregnancy that has been overlooked.

PERNICIOUS VOMITING OF PREGNANCY.[13]

Williams, leaving out of consideration all cases in which the vomiting is due to conditions having nothing to do with pregnancy, believes there remain three distinct types: reflex, neurotic and toxemic, each dependent upon different etiological factors and demanding especial methods of treatment. The reflex is due to the presence of abnormalities of the generative tract or ovum. These include displacements, endometritis, tumors, hydramnios, hydatidiform mole and certain cases of twin pregnancy. The neurotic type exists and is more or less allied to hysteria, although he says it should be borne in mind that it is possible that the underlying cause of the neurosis may be a mild toxemia, while satisfactory evidence of the same cannot, at present, be adduced in support of such a view. The toxemic type may originate from several sources, the gastro-intestinal tract, the fetus or its appendages, the ovary, or it may be of hepatic origin. He believes that the latter are much more common than is generally believed, as the liver is particularly susceptible and offers only slight resistance during pregnancy. In fatal cases the lesions in the liver resemble those of acute yellow atrophy. The toxemic type is distinguished from the neurotic by examination of the urine, which is characterized by a marked decrease in the amount of nitrogen excreted as urea and an increase in the amount excreted as ammonia. He believes the prognosis is excellent in reflex and neurotic vomiting, with proper treatment and usually without the termination of pregnancy, while in toxemic vomiting, abortion offers the only chance of saving the patient.

ERGOT IN OBSTETRICS.[14]

In replying to a series of questions in regard to the use of ergot in obstetrics, Davis says that he is accustomed to use ergot in some form in the great majority of cases of labor. The only contraindication to its employment is excessive hemorrhage with a depleted condition of the vessels and a feeble heart. In these cases intravenous saline transfusion is employed freely, with strychnia, and if necessary digitalis. The uterus remains contracted in these cases from the stimulating action of the strychnia, supplemented, if necessary, by compression or packing of the uterus, and ergot is used during convalescence in small doses at frequent intervals to secure permanent uterine contraction.

The reason for not employing ergot at once in these cases lies in the fact that it has seemed to increase the labor of the heart profoundly depressed by loss of blood. Thus in a recent case of central placenta previa, the woman being greatly exsauguinated, collapsed twice, and was only rescued by the prompt use of intravenous saline transfusion with hypodermic injections of strychnia, ether and digitalis. Ergot was not given in this case until forty-eight hours had elapsed after her delivery.

He is not in the habit of administering ergot until the child has been born and the placenta is almost ready to be expelled. He believes that the best results are obtained by giving ergot and strychnia together, and he has never witnessed any untoward results from the use of ergot. In hospital practice he uses it for a week or more. Lactation is thereby promoted, nutrition stimulated and after pains exceedingly rare.

Hirst has used ergot as a routine practice in all cases of labor for fifteen years. He has never seen any disadvantage arising from its use and he regards it as a precaution against postpartum hemorrhage and relaxation of the uterus. He administers it immediately after the birth of the child. In case of twins he gives it after the birth of the first child if there is nothing about the condition of the second child to obstruct labor.

Cameron and Coles, on the other hand, always use ergot but never till the uterus is empty, while Krusen does not believe it should be used in routine practice in all cases of labor, but only for some special indication, as in those cases in which the retraction and contraction of the uterus is not satisfactory after it is completely emptied, also, particularly after chloroform anesthesia where there exists a tendency to uterine relaxation. He believes it should never be given until the completion of the third stage; as given in the second stage it may produce a tetanic condition of the uterus, and in the third stage it favors retention rather than expulsion of the placenta. He also believes that ergot with strychnia is of value in cases of puerperal sepsis, by promoting involution, rendering less liable the transmission of infection through sinuses and lymphatics.

MEASLES IN THE PUERPERIUM.[15]

Campbell reports a case of a young primipara, and her brother, a boy six years of age, who were at a place of public amusement at a time when measles was rather prevalent. The following day both showed signs of having caught cold, but the symptoms disappeared in about thirty-six hours. Three days afterward the woman had a perfectly normal labor and gave birth to a living, healthy child. On the seventh day of her puerperium, her brother showed marked catarrhal symptoms, and on the next day the patient's temperature was almost 100°. A typical measles rash appeared, followed by some ear symptoms and a general facial edema. Both patients made perfect recoveries. As soon as the mother became ill the baby was put in charge of a nurse and isolated. Seven days afterward the infant began to be fretful and restless. There was some vomiting, aversion to food and a slight temperature. Within forty-eight hours there was a most typical measles rash, well marked all over the body. The infant recovered. Campbell directs attention to the following points of interest. Though exposed at the same time, the symptoms manifested themselves twenty-four hours sooner in the healthy boy than in the pregnant or puerperal woman. The attack was more severe in the case of the boy than in the case of the puerperal patient, and the attack was less severe in the case of the fortnight old infant.

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[13] Bull. Johns Hopkins Hosp., March, 1906.

[14] Therapeutic Gaz., Jan., 1906.

[15] Brit. Med. Jour., Feb. 10, 1906.

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Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

Section on Practice of Medicine.

Boston, June 5, 6, 7 and 8, 1906.

Dr. H. C. Moffitt, of San Francisco, Cal., in the chair.

Dr. Philip Marvel, of Atlantic City, N. J., read a paper entitled

SOME CLINICAL OBSERVATIONS IN A CASE OF ACUTE LYMPHATIC LEUKEMIA, SUGGESTING INFECTION AS AN ETIOLOGICAL FACTOR IN THE DISEASE.

Notwithstanding the great progress that has been made in recent years, the author said that the cause of leukemia still remains in doubt, but the morbid phenomena of acute infectious diseases have impressed him with the strong conviction of their resemblance to the clinical manifestations of the case of acute leukemia or lymphemia, which he reported in very great detail, and desired to call attention to it. Reference was made to the anatomy and physiology of the lapatine or faucial tonsils, which were apparently the chief, if not the primary, points of attack in the case reported, and which bore a relational comparison to the cases to which he would refer. It was not without interest in this connection that reference was made to the coincidence that infections much more readily occurred in childhood and in early life than in advancing or mature age, which was equally true of leukemia, especially of the acute lymphatic form. It was very unfortunate that an autopsy was not obtainable. The special features to which he wished to draw attention were, first, the undefinable cause of the pain in the limbs, being the first noticeable evidence of the disease; secondly, the slowly progressive anemia, coincident with menorrhagia; third, the acute attack of tonsillitis, and its relation to the subsequent enlargement of the lymphatic glands in the neck, face, axilla, and groin, with the thyroids, liver, and spleen; fourth the absence of pathogenic change in the blood cells.

The following observations supported clinically the diagnosis: The rapidly progressing anemia, conspicuous preponderance of lymphocytes, general debility, pathogenic change in the lymphatic glands, enlargement of the spleen, liver, and thyroids, early appearance of petechia, ecchymotic or purpuric areas, hemorrhagic dyscrasia, gastro-intestinal irritation, and associated with the latter part of the illness, profuse sweating. The clinical evidences pointing to infection in this case were strikingly similar to those recognized in scurvy sepses and other accepted bacterial diseases.

The author reviewed the cases of acute leukemia, previously reported, which show a remarkably large percentage of tonsillitis, associated with the early symptoms of the disease, hitherto not considered important. If one followed closely recent studies in numerous systemic infections, that have been the immediate evidences of a streptococcic tonsillitis, *e. g.*, endocarditis, myocarditis, nephritis, articulo-arthritis, peritonitis, appendicitis and a variety of conditions, called rheumatism, etc., and these were occasioning no slight interest in the relationship, and which he believes do exist, between the streptococcic invasion of the palatine tonsils and the pathogenic involvements which follow, the inference is not without interest. Reasoning *à priori*, he said the foregoing would seem to support strongly the position taken, namely, that acute streptococcic tonsillitis occurring as the earliest definite manifestation in this case, if not immediately causative, the streptococci or their toxins had much to do with the pathogenic change and subsequent behavior of the lymphatics and blood tissues, and incidentally with the serious metabolic disturbance, functional failures, and death which followed.

THE RELATION OF EXCESSIVE GASTRIC ACIDITY TO GASTRIC SYMPTOMS.

Dr. J. Dutton Steele, of Philadelphia, read a paper on this subject, and stated, at the outset, that his principal object in presenting such a paper was to confirm the observations of Dr. Stockton. He, however, proposed to go a step further to show that excess of acid alone is not capable of producing the symptoms of gastric irritation seen in so-called hyperacidity. There must be some other condition present which renders the gastric mucous membrane more sensitive than usual, so that it cannot stand an amount of acid that will be easily tolerated if the mucous membrane is in a normal condition.

In order to determine what produces this hyperesthesia of the gastric mucous membrane, the author presented an analysis of a series of thirty cases with symptoms of hyperacidity, which showed quite clearly that tne irritation occurred, not only when the per cent of the acid was high, but often when it was within the middle and lower grade. This would indicate that the mucous membrane was so hypersensitive that it was intolerant not only to high grades of acid, but often to middle or low grades. In about one half of his cases the cause for the irritation and pain lay in the existence of decided gastric-motor insufficiency or of hypersecretion. In his cases 3 had undoubted signs of alimentary hypersecretion. Ten cases had decided retention. In 14 cases no cause could be demonstrated for the hyperesthesia. In 7 the acidity was of the higher grade, and in the other 7 of the lower and middle grades, including 1 case of achylia. In almost all the cases the gastric symptoms were directly connected with overworry or fatigue, or were the part of a general nervous irritability. In all the patients the gastric symptoms improved and finally disappeared under a treatment directed toward relieving the nervous strain, and raising the level of nutrition without paying much attention to the conditions of the stomach. The result of the treatment, quite as much as anything else, would indicate that the hyperesthesia was a local manifestation of a general nervous irritability. In other words, it was a sensory neurosis of the stomach. If this be true, namely, that the hyperesthesia rather than the acidity was the point of attack in our therapeutics, then considerable light was thrown upon the treatment of the condition.

In speaking of the treatment, reference was made to the diet, the use of sedatives, of alkalies, and of nux vomica. In the treatment of hyperesthesia of nervous origin, a liberal and unirritative diet would be the most suitable; its liberality would improve nutrition, and in this way help general nervous irritability. All food should be given in such a form as to produce the least possible irritation. The various nerve sedatives had proved very useful in relieving temporarily the discomfort in these cases with irritative symptoms. In the rare cases of achylia with symptoms of hyperacidity, they were the only means of relief.

DISCUSSION.

Dr. Hobart A. Hare, of Philadelphia, said the administration of drugs to relieve pain in this condition was similar to the homeopathic form of treatment, not, of course, following the principle of *similia similibus curantur*, but characterized by an endeavor to treat the symptoms instead of the cause producing them. Most of the drugs recommended in many textbooks for the relief of these cases were grouped under nerve sedatives, and not only did no good, but much harm in many instances. Many of the cases that had resisted treatment by drugs, diet, had recovered by following out a plan of rest cure.

Dr. Charles G. Stockton, of Buffalo, N. Y., said that more of these cases of hyperesthesia described by the essayist were seen than those of hyperchlorhydria. The fact should be recognized by the profession that sometimes the symptoms may be made very acute on account of disturbances of the general nervous system, and which could be relieved by measures only of a general character.

Dr. De Lancey Rochester, of Buffalo, pointed out the importance of making numerous examinations of the gastric contents and under different kinds of circumstances before coming to any definite conclusions as to the presence of superacidity.

With reference to motor insufficiency as a cause of the pain, he said it was not simply this, but the attempt of the stomach to empty itself, producing a sort of colicky pain.

Dr. B. W. Sippy, of Chicago, called attention to the complexity of symptoms commonly designated as hyperchlorhydria, saying they were often treated by the general practitioner, and he desired to direct attention to the fact that pain was not a common symptom. The patient complained more of a feeling of discomfort or fullness. When pain was present as a constant symptom, it almost always was indicative of an ulcer.

Dr. John A. Witherspoon, of Nashville, Tenn., thought it was important not only to examine the stomach contents, but also its size and its capacity for drainage. The essential part of treatment in these cases should be directed toward drainage of the stomach

POST-CRITICAL FEVER AND OTHER SEQUELAE OF CROUPOUS PNEUMONIA.

The author of this paper, Dr. James E. Talley, of Philadelphia, presented a study of the last 325 cases at the Presbyterian Hospital. He stated that almost naturally one thought of suppurative conditions somewhere as the commonest cause of the persistence of fever, after the crisis in pneumonia, although apparently endocardial and pericardial inflammation was a close second. Among the suppurative cases they found 5 of empyema, 1 being interlobular, 1 encysted and 1 genuine case of abscess of the lung sufficiently large to be diagnosed antemortem.

After narrating the histories of many cases, the author said that the causes of post-critical fever in croupous pneumonia were evidently manifold, and the exact cause could only be determined in a given case by careful and repeated examinations of the patient. Even when such examinations were apparently negative, one should be slow in attributing the fever simply to delayed resolution or autolysis alone. The number of small abscesses found in the stage of gray hepatization, post-mortem, led him to believe that it was not alone the slow resolution, but perhaps more frequently a varying degree of this purulent tendency, especially in the stage of gray hepatization, that explained the fever. Although the abscesses were usually multiple, one case showed distinctly one small abscess which in itself might have caused the persistence of the fever, and it was conceivable that such an abscess might discharge undetected or, surrounded by an encysting wall, gradually absorb and the case recover without the exact cause of the fever ever being known. Even an encysted empyema, if small, might be hard to demonstrate. The value of the x-ray in detecting these conditions in the chest was variable. It was the common experience of a thickened pleura in this class of cases that rendered the x-ray of less value. Given a previous consolidation without much thickening of the pleura, and the shadow was less uniformly dense than that of fluid in the pleura, so that under such circumstances a loculated empyema or a full abscess cavity was apt to stand out by its dense shadow in contrast to the less homogeneous shadow of a resolving pneumonic consolidation. Under such circumstances, an empty cavity was even more evident, surrounded as it usually was by its wall. One case showed that an area of bronchiectasis with the bronchial tubes filled with secretion simulated an abscess. The mistake was all the more natural, as there existed above a well-defined cavity of an abscess that had discharged. It was doubtful if the number of endocardial or pericardial involvements in this series really represented the vast importance of the subject, and that which must be attached to this cause as the factor in many fatal cases. One must be alert for this complication, especially in those who have an old endarteritis or atheroma. The case detailed showed that the right side of the heart was by no means free from serious involvement. The author said that the development of a systolic murmurtmight be explained by the anemia well known after pneumonia or by the relative insufficiency due to a weakened heart muscle; but the development also of a diastolic murmur usually meant that there was genuine endocarditis, as proven by the autopsies.

COLON BACILLUS SEPTICEMIA.

Dr. De Lancey Rochester, of Buffalo, N. Y., reported the case of a patient who had a septicemia due to an organism belonging to the bacillus coli group. This organism in the beginning did not have the characteristics of the bacillus coli communis, but under subsequent cultivation developed them. The organs and tissues had the gross lesions of septicemia.

PROPRIETARY MEDICINES AND THEIR ABUSES.

Dr. George Dock, of Ann Arbor, Mich., discussed some of the remedies proposed for the present abuses, and said that one was the exclusion of advertisements of proprietary remedies, particularly those of unknown composition, from medical journals, and there were good reasons why this view should receive consideration. A scientific medical journal made a more pleasing impression when it was free from all advertising. Merely keeping such advertisements out of the medical journals would not stop the nuisance, for the same matter, or more, could be forced upon the profession in other ways. Nor would the exclusion of such matter from journals be a likely aid to the morals of those who now fell victims to the wiles of the advertiser. It would hardly be expected that physicians would abandon the reading of journals with advertisements of nostrums, but if the goods advertised were not bought the obnoxious pages would soon disappear. It would seem possible to exclude the most exaggerated or obviously baseless claims, but even this was not so easy as might seem at first glance. A decided gain would come from a freer criticism of all kinds in our medical literature. What was needed was (1) broader and deeper training in preliminary and biological branches, and the cultivation of exact habits of mind. (2) A more intense study of pathology, not merely to acquire anatomical data, but to learn the actual results and extent of the lesions in common diseases, so that the student might offset speculation with fact. (3) A more intimate study of clinical medicine, that could come only from more prolonged and more personal investigation at the bedside.

The author summarized by stating that proprietary medicines were increasing as the result of natural developments. Their abuses sprang partly from the exaggeration of legitimate commercial methods and partly from the credulity of the medical profession. The remedy for the latter was wholly in ourselves, and he asked that all do what they could to overcome this.

Dr. Richard C. Cabot, of Boston, followed with a paper in which he discussed the physician's responsibility in the nostrum evil.

At a joint session with the Section on Pathology, **Dr. Joseph A. Capps**, of Chicago, read a paper entitled

SOME OBSERVATIONS ON THE EFFECT OF THE WITHDRAWAL OF FLUID FROM THE THORAX ON THE BLOOD PRESSURE.

Pleural exudates were often under a positive pressure of 5 to 26 mm. during expiration, and that this positive pressure acted in direct opposition to the normal intra-thoracic negative pressure impeding the flow of the venous blood from the abdomen into the thorax, when the exudate was large. An effort was then made by the respiratory muscles to restore the negative pressure within the chest. Deep inspiration increased the intra-thoracic negative pressure to such an extent that compensation, or partial compensation, maintained the venous flow. If such compensation failed, the right heart received an insufficient amount of blood, and the left heart did not fill the body arteries, the blood pressure sunk rapidly, and death became imminent. The withdrawal of fluid from the pleural cavity was attended with less danger than its introduction or accumulation. Unfavorable symptoms usually came on suddenly, so that any sign that would warn of the approaching danger would be of great benefit, and the observations were made with that view. In his observations of 15 cases of pleural effusion, 4 of which were tapped twice, he took the blood pressure at short intervals before, during, and after thoracentesis, in each of which aspiration had been used. The blood chart exhibited widely varying features, but there were some constant features, as follows: During the excitement of preparation and pain of puncture, a temporary rise in temperature; during withdrawal of fluid, pressure fell and reached the lowest point at the time of, or subsequent to, the removal of the needle, the average fall in the 19 aspirations being 20 mm. pressure taken an hour or two afterwards was usually 5 to 15 mm. lower than the initial pressure, the average fall in the 19 being over 8 mm. Some special influences had also been noted, as follows: The amount of fluid withdrawn was an important factor in determining the degree of the fall; the rapidity of the withdrawal was no less important, other things being equal, slow aspiration causing less fall than rapid, the duration of the effusion was of greatest importance, and in the recent cases the fall was not great and the recovery was rapid; in long-standing cases the fall was greater; senile changes in blood vessels and heart seemed to favor rapid and deep fall with slow recovery; heart disease alone appeared to have little effect. Pneumothorax did not appreciably affect the blood pressure. Up to a certain point arterial pressure increased with increase in pressure of intra-abdominal fluid. Beyond this it fell, and this fall was regarded as of the nature of a temporary collapse due to sudden relaxation of the splanchnic vessels. The rate of withdrawal of the fluid was found of more importance than the amount withdrawn, although the final pressure was more affected by the amount. Pressure externally on the abdominal wall at the end of drainage raised pressure 5 to 20 mm. The cases which underwent a marked fall during operation showed the most marked improvement.

CHRONIC NON-TUBERCULOUS AFFECTIONS OF THE LUNG.

Dr. S. G. Bonney, of Denver, Colo., said that bronchitis and bronchiectasis, while strictly excluded by the subject, almost invariably co-existed with emphysema, chronic interstitial pneumonia, pneumonokoniosis, and nontuberculous bacterial infections. The chief interest attached to the study of nontuberculous pulmonary conditions related to their simulation of consumption, so that a clearer differentiation would be of value. Cases indigenous to Colorado were such as exhibited morbid changes developed as a result of local conditions. So-called miners' phthisis was difficult of dissociation from consumption, as it presented the rational symptoms of tuberculosis, even to frequent pulmonary hemorrhages, and occasionally showed the presence of tubercle bacilli. Bacilli appearing only after long observation in these cases were not to be considered as a causal factor of importance, as the terminal infection had merely been grafted upon a soil previously made receptive. The actual morbid processes consisted of chronic bronchitis, emphysema, bronchiectasis, pneumonokoniosis, with occasional cavity formations resulting from anemic necrosis and other causes. Such cases developed in the mining district of Colorado almost exclusively. Predisposing causes were long hours under ground, breathing atmosphere devoid of oxygen, extreme dampness, exhalations from the candles, smoke resulting from the blasting, the constrained position, frequent wetting of the feet, alcoholic habits, immoderate exercise at high altitudes, and unhygienic surroundings when not at work. The distinguishing features are the chronic bronchitis and emphysema and bronchiectasis, the development of which was due to the frequent paroxysmal cough, weakening of the bronchial walls from emphysema, and pressure exerted by stagnating secretions. Corresponding to fibrous tissue proliferation of interstitial pneumonia, bronchiectatic cavities develop. Through the ulceration of the mucous membrane these might be transformed into genuine pulmonary cavities, or they might develop by reason of necrotic softening of the tissues, in which event they were more likely to increase in size and have a wider bearing on the course, especially if communicating with a bronchial tube. Secondarily to these changes were marked circulatory changes manifested by venous engorgement and enlargement of the right heart. Symptoms which arose from this group of chronic disturbances were of gradual development, relating chiefly to dyspnea, cough and expectoration, loss of weight and strength, and cyanosis. The physical signs upon inspection consisted of dyspnea capillary dilatation upon the chest in front, changes in the configuration of the thorax commonly ascribed to emphysema, and sometimes unilateral or bilateral retraction of the apices. Upon palpitation the signs were those of partial consolidation, usually at the apices, moist râles, fine and medium-sized, unilateral dullness. There were cavity signs in almost any portion of the lung exactly as in tuberculosis. The prognosis was regarded as almost invariably unfavorable. The essential diagnostic feature was the differentiation from pulmonary tuberculosis.

Another class of cases observed were those designated as important cases, being the cases sent to Colorado with a diagnosis of tuberculosis. Chronic influenza was mentioned as being capable of exhibiting all the rational symptoms of tuberculosis. In cases under treatment where there was absence of tubercle bacilli the amelioration of symptoms had been disproportionate to the required period for corresponding improvement in similar cases showing the tubercle bacilli.

Dr. F. Forchheimer, of Cincinnati, Ohio, followed with a paper on

THE TREATMENT OF PLEURISY WITH EFFUSION.

The author said that a number of explanations had been offered to show how serous effusion was removed by nature, the oldest being that of absorption, either by blood vessels or lymphatics. The mechanism was merely a lymphatic pump, but when there was a great effusion lymphatic absorption was entirely suspended, because expiration could not take place. The author regarded it as more likely that the compression of the lung was the predetermining factor. This intra-pleural pressure had been found to be as great as 40 mm. of mercury. If these explanations were excepted, it would then appear that absorption was arrested by inflammatory processes deposited upon the endothelial layer; also by intra-pleural pressure. Absorption by the pleura being diminished by exudative processes, the inflammation of the pleura itself must be reduced, for which the present treatment consisted of the use of the icebag, local hydrotherapy, rest in bed, strapping the affected side, counterirritation. As a second indication, he mentioned the loosening of the intra-pleural pressure by the removal of the fluid. General and local treatments had been employed; the general aiming to modify the blood structure in such a way that absorption took place, for which purpose use was made of cathartics, diuretics, diaphoretics, diet and the milk cure, but the local treatment was preferred by the author as fully covering and meeting the indications, and of the two local methods, counterirritation and emptying the fluid, the latter being declared the most successful and practicable.

The author said that fluid should not be allowed to remain in the cavity until the development of dangerous symptoms, or even to collect, because of the danger of the formation of adhesions, and because a man having a pleuritic effusion was not to be considered as in a good condition, as dangerous symptoms might develop at any time. Proper precautions were necessary. The aspirator should at first contain air, and the attempt should not be made to withdraw all the fluid at one sitting. No more should be withdrawn than necessary to relieve the symptoms, as natural absorption would then take place. Patients should be in as nearly a recumbent position as possible, and should be watched during the operation, and if there was violent and spasmodic coughing, constriction, faintness and pain, the operation should be suspended for a while. In chronic serous effusion a different condition was present, and accordingly somewhat different methods, suitable for the relief of that condition, would be required. In the treatment of empyema it differed in principle from the treatment of serous effusion, in that the former was purely surgical, and the indication would be the opening and draining of the abscess. Some cases recovered where aspiration was the only treatment resorted to, but the proportion of recoveries was small, and it was impossible to say just which case would get well. The earlier the abscess was opened, the less would be the mortality. At times, difficulty arose in getting the abscess to heal up. When the adhesions covering the lung were removed, it expanded, so that even a rigid-walled abscess could be made to heal up.

(*To be continued.*)

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Recent Literature.

Minor and Operative Surgery Including Bandaging. By Henry R. Wharton, M.D. Professor of Clinical Surgery in the Woman's Medical College of Pennsylvania; Surgeon to the Presbyterian Hospital, and the Children's Hospital; Consulting Surgeon to St. Christopher's Hospital, The Bryn Mawr Hospital, and Girard College; Fellow of the American Surgical Association. Sixth edition, enlarged and thoroughly revised, with 532 illustrations. Philadelphia and New York: Lea Brothers & Co. 1905.

This well-known work on minor surgery now appears in its sixth edition. The author has recognized the expediency of including many of the more common operations of surgery. He, therefore, has added to the title the words "Operative Surgery." The book is an excellent one. The descriptions of the different forms of bandages are clear and the different minor dressings are well presented. The book to-day may be, perhaps, termed a handbook of surgery in that it is a ready reference book to the common dressings and to such surgical operations, as the ligation of arteries, amputations, excisions and to some of the more common operations, such as intubation, tracheotomy, appendectomy and the radical cure of hernia. We doubt the wisdom of including these operations in a book of this description. However, they are well presented and will undoubtedly serve a useful purpose. Dr. Wharton's book is to-day certainly one of the best books on Minor Surgery.

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HYDROTHERAPY.

Among the many means of physical treatment which are coming more and more to be recognized as essential, hydrotherapy takes a prominent place. The laity at large recognizes the value of water as never before. Although we have no definite statistics at hand, we do not question that bathing is far more prevalent now than it was even ten years ago. The improvement in our plumbing and the great store set by properly equipped bath rooms in our modern houses is sufficient evidence that quite apart from medical prescription the usefulness of water is coming to be more and more recognized. It is not to be questioned that the benefit to health is definite from what some might still be inclined to call a modern luxury.

It is a somewhat natural step from this development of modern civilization to bathing establishments specifically designed for the treatment of disease. The famous baths of Europe have long been frequented by vast numbers of persons in search of health for divers disorders. The recognition of the fact that such baths may be had at home through more or less artificial means is being slowly acknowledged. It must, of course, not be forgotten that a sojourn in a foreign bath carries with it much suggestive influence, and that the idea of being helped is a valuable adjuvant to the actual treatment undertaken. This element may also be supplied at home, though perhaps in less degree, at the more modest hydrotheraptic establishments, which are already beginning to appear in our larger cities, and which no doubt before long will be widely adopted in our smaller centers of population.

We have from time to time commented on the usefulness of this form of treatment and of its general neglect by the rank and file of medical men. It is hard to get away from preconceived ideas and the old teaching of the schools, but a campaign of education in regard to therapeutics in general has been inaugurated which unquestionably is destined to result in the greatest possible good to the community.

The experience of the medical baths, which have now for some years been established in Boston, is an interesting example of what we mean. These baths, based on modern principles of hydrotherapeutic treatment and thoroughly equipped with adequate apparatus, have for some years been doing pioneer work in this community. Recognition of their usefulness has at times been slow, but apparently the time of skepticism is passed, and they have now finally entered upon a period of increased usefulness in this and neighboring communities. Dr. James J. Putnam, chairman of the committee of physicians in charge, has recently sent out a circular to subscribers for the guarantee fund, stating that the medical baths have proved a success. Dr. J. H. Pratt, director of the baths, also states that not only have the baths proved a success in this city, but that something has been done toward advancing scientific hydrotherapy in other parts of the country. He lays stress upon the wide usefulness of baths given under medical direction and points out particularly their usefulness in many conditions of the heart where previously it was thought necessary to visit Nauheim to procure the same results that are now possible at home by artificial means. Dr. Pratt alludes to three personal patients, who, after taking a course of carbondioxide baths at home, expressed regret at their previous visits to Nauheim. When it is remembered that these baths are conducted solely in the interest of the patients and are in no way designed to bring profit to physicians, they should command an even wider support than they have yet attained. We are gratified to be able to report progress in this most useful field of therapeutic endeavor.

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THE FEAR OF LEPROSY.

One of the interesting phenomena common to the human race is the fear of disease. This, no doubt, has its basis in a perfectly natural instinct of self-preservation. If a disease is unexplained and particularly if it spreads from person to person, the fear is enhanced out of all proportion to the relative danger. We do not have to go back many years to remember the dread and panic which spread over the Southern States, and even extended into the North, at the presence of yellow fever. This dread has been entirely removed through the splendid work of Dr. Walter Reed and his colleagues of the Yellow Fever Commission. By degrees many other epidemic diseases have ceased to take such a hold on the popular mind as formerly, owing to the increase of our knowledge and the substitution of reason for emotion in facing the problems which epidemic disease presents.

In view of these self-evident facts, it is extraordinary that leprosy should maintain its place in the popular mind as a personal menace. Leprosy, no doubt, occupies a peculiar place in the category of disease owing to the distressing pictures presented in biblical narratives and reinforced through all the centuries since by ignorance and popular credulity. It is a most pitiable spectacle that at this stage of civilization and medical knowledge a single individual should be hounded from state to state and practically refused treatment and protection because he happens to be a victim of leprosy. Assurances from high authorities that leprosy is a very slightly contagious disease and that with ordinary precautions we are practically assured against its transmission from person to person apparently are wholly unavailing to allay the popular dread. We are seeing the consequence of unreasoning fear in the treatment of this unfortunate Syrian leper who is apparently in this twentieth century as much of an outcast as if he were living in the early years of the Christian dispensation. That one leper should create a panic which, through the agency of the daily press, spreads far and wide over the country is a phenomenon worthy of comment and study.

A contemporary of the lay press has recently used this situation as an argument against our modern scientific methods. The claim is made that men of science are responsible for the widespread fear of contagious disease and incidentally of leprosy. Such perversity in one's point of view is hardly worthy of argument. It is but another example of the marvelous lack of information on medical matters which even persons of supposed intelligence possess. The campaign of education is certainly slow. We naturally have no desire to minimize the danger of leprosy or of any other disease or of suggesting a remittance of all legitimate precautions, but along with our insistence upon possible dangers should always go definite assurances of the limitations of those dangers and of the point at which precautions become absurdities. This leper about which so much of late has been said by the daily press is an example in point.

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PSYCHIATRY IN GERMANY.

With a view to securing for the new Bellevue Hospital the benefit to be derived from special studies in hospital construction and management at the best institutions in England and on the continent, Dr. M. S. Gregory, resident alienist and chief of the psychopathic department, was sent abroad last April by the trustees of Bellevue and Allied Hospitals. He has just returned from the trip after visiting London, Paris, Berlin, Munich, Berne, Lucerne and other cities and will embody the results of his investigations in a formal report to the board of trustees. In speaking of the status of psychiatry in Germany he states that he was much impressed with the feeling regarding insanity there. Mental diseases, instead of exciting the abhorrence in the public mind which is met with in this and many other countries, are looked upon in the same light as cases of disease of other parts of the body. The result is that a large percentage of patients who might otherwise be regarded as incurable, and be shut up in an institution for a lifetime, receive treatment in the early stages of their maladies, and are restored to a normal condition and returned to their families within a few months. No taint of having been legally adjudged insane is on them, and they have nothing to live down in the communities in which they reside. The study and treatment of these cases is conducted in the most scientific manner and in the preliminary dealing with mental diseases, Dr. Gregory thinks the German hospitals lead the world. He found the procedure in criminal cases, with alleged insanity, also most admirable.

"For instance," said he, "a man commits a murder in Germany and sets up a plea of insanity. They have no foolish system such as we have. They do not call, say, fifteen physicians for the defense and fifteen physicians for the state, and perhaps as many laymen and tell them to find out whether the murderer is sane or insane. Instead, the judge orders the prisoner committed to a general hospital in the district, and it becomes the duty of the state alienist to that institution to keep the prisoner under observation. He takes his own time for his study of the case, and upon his report the accused is tried or not tried. This official gets no fee. He has no prejudices concerning the prisoner, one way or the other. If he declares the man sane, and his verdict is successfully challenged, the work of that alienist for the government ends, then and there. No politician can save him."

Dr. Gregory found nothing better abroad than the New York State Hospitals as regards buildings, management and the treatment of insanity. As to the treatment of patients in general hospitals, he expresses the opinion that nowhere in Europe do such patients have so many comforts and privileges as in Bellevue and other similiar institutions here.

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MEDICAL NOTES.

New Buildings of the Berlin Pathological Institute. — In commemoration of the completion of new buildings of the Berlin Pathological Institute a volume of papers has been published, edited by the director, Prof. Johannes Orth. This department of the University of Berlin will always be famous because of the late Professor Virchow's long connection with it.

The Death of Mr. E. Noble Smith. — Mr. E. Noble Smith, widely known as an orthopedic surgeon, died July 20, at the age of fifty-nine years, at his home in London. Mr. Smith was at the time of his death senior surgeon of the City Orthopedic Hospital, London, and had done much to advance this branch of medicine. He was the author of many papers dealing particularly with orthopedic subjects.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Aug. 7, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 16, scarlatina 5, typhoid fever 14, measles 3, tuberculosis 20, smallpox 0.

The death-rate of the reported deaths for the week ending Aug. 1, 1906, was 19.66.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Aug. 11, 1906, was 237, against 236 the corresponding week of last year, showing an increase of 1 death and making the death-rate for the week 20.45. Of this number 140 were males and 97 were females; 229 were white and 8 colored; 157 were born in the United States, 73 in foreign countries and 7 unknown; 46 were of American parentage, 157 of foreign parentage and 34 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 32 cases and 2 deaths; scarlatina, 19 cases and 1 death; typhoid fever, 29 cases and 1 death; measles, 10 cases and 0 deaths; tuberculosis, 31 cases and 17 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 12, whooping cough 4, heart disease 21, bronchitis 3 and marasmus 13. There were 7 deaths from violent causes. The number of children who died under one year was 87; the number under five years 104. The number of persons who died over sixty years of age was 38. The deaths in public institutions were 84.

There were 1 case and 2 deaths reported from cerebrospinal meningitis during the week.

Report of the Portland, Me., Board of Health. — The annual report of the Board of Health of Portland, Me., for the year 1905 shows active work during the year. The report discusses the question of tenement-house inspection, inspection of yards, collection of offal, tuberculosis, bureau of milk inspection, contagious diseases and other matters of minor importance. Regarding tuberculosis the report insists that the time has come for a systematic and unrelenting effort to combat the disease. Although the law requires that cases of tuberculosis be reported, physicians have been lax in carrying out this provision. During the past year only 5 cases were reported by physicians in spite of the fact that 79 deaths were ascribed to the disease. This death-rate is less than for seven years past. In 1901 the number of deaths reached 118, as contrasted with 79 in 1905. The project of establishing a tuberculosis sanatorium is under consideration. An interesting diagram is included in the report showing the number of deaths from twenty-two principal causes. Diseases of the heart heads the list, followed by nephritis. Pneumonia and tuberculosis are next in order with precisely the same death-rate. Meningitis shows a much higher death-rate than typhoid fever and cancer and apoplexy have been equally fatal. Although the number of cases is not sufficient to make these statistics of great value, such a diagram should be of much interest if repeated year after year under the same classification.

NEW YORK.

Food Inspection. — The Health Department has been very active of late in the inspection of other foods as well as milk. During the month of July 17, 594 pounds of "assorted meats" including sausages of various kinds, 107,000 pounds of other meats judged to be unfit to eat, 37,000 pounds of fish, and over 3,000,000 pounds of fruit, principally bananas and pineapples are investigated. Since the first of the year there have been destroyed by the Department over 750,000 pounds of meats, 232,000 pounds of fish, and 7,500,000 pounds of fruit — a total of more than 8,480,000 pounds of improper food.

Death after Chloroform Anesthesia. — A young woman, twenty-two years of age, died on August 5, while under chloroform anesthesia, given for the performance of an operation. Both the surgeon in charge of the case (which was one in private practice) and the anesthetist were graduates of the medical department of Columbia University, while the latter was until recently an interne of St. Francis' Hospital, and therefore presumably entirely familiar with the administration of anesthetics. It appears also that every effort was made by the physicians to resuscitate the patient as soon as the symptoms of syncope set in. The nature of the operation for which the chloroform was given, and why chloroform was selected as the anesthetic, have not been stated.

An Independent Ice Plant. — In view of the high price of ice, Dr. Edward F. Brush, the energetic and efficient mayor of Mount Vernon, Westchester County, has inaugurated a movement for the establishment of an independent ice plant in that city. It was started with a crowded mass meeting, at which a large part of the funds required for the undertaking was subscribed.

Centenarians. — John Berrian, a negro centenarian, died in Fordham Hospital on August 9. He boasted of being one hundred and six years old, but this claim was probably not very well authenticated. Old "Pop Berrian," as he was familiarly known in the Borough of the Bronx, lived for many years in a cabin on the shore of Eastchester Bay, an inlet of Long Island Sound, and made a livelihood by the sale of the fish he caught and the clams he dug. He was born a slave in the family whose name he took. He was married three times and leaves a large number of descendants.

Mrs. Mary Donaldson, of Bethel, near Middletown, in Sullivan County, N. Y., died on Aug. 3 at the reputed age of 109 years. She became blind about a year ago, but is stated to have been active until a few days before her death. Her husband, Andrew Donaldson, at the age of ninety-two, survives her.

Condition of Bakeries. — As the result of a recent investigation of the conditions existing among the bakeries of the city, the Health Department during the past week has ordered, under penalty of closure, that ninety-one of the bakeshops shall be cleaned up immediately and so improved as to conform to the provisions of the Sanitary Code and the factory and tenement house laws. It is also announced that all employees suffering from pulmonary tuberculosis are to be eliminated from the shops and factories of the trade. It is gratifying to learn that the vast majority of the bakeries of the city, numbering several thousand, were found to be in excellent sanitary condition, though the inspection has not yet been entirely completed.

Miscellany.

CHOLERA IN THE PHILIPPINES.

According to the quarterly report of the *Bureau of Health of the Philippine Islands* it appears that during the first three months of 1906 the records show that there were 24 cases of cholera in Manila, and, with the exception of 2, all of them occurred during the first half of this period. The last case occurred March 21, 1906.

The cholera in the infected provinces continued with the same intensity during the past quarter as in the preceding, with the exception of Rizal, where it has been almost entirely eradicated.

By the middle of January the cholera infection had firmly established itself in the Provinces of Pampanga, Bulacan, and Cavite. The local authorities appeared to be unable to stamp out the disease without some outside help. Accordingly, early in February all the available force of the Bureau of Health was sent to those provinces for the purpose of aiding the provincial and municipal officials.

A general plan of campaign was mapped out. The disease was first combated in those towns which presented the greatest number of cases, but as soon as the situation in them was under control the inspectors were sent to the most distant points to which the infection had spread, with instructions to gradually work toward a common center. This had the effect of throwing a cordon around the infected area, with an ever-diminishing diameter. The infected towns were almost without exception situated upon rivers, and, by gradually working down along these and leaving only clean towns behind, by the time the inspectors arrived at the sea the cholera was effectually stamped out.

In each municipality the aid of the local authorities was invoked. This not only had the effect of furnishing a large corps of sanitary workers at a minimum expense, but it also served the purpose of a practical school of sanitary instruction whereby the municipal officials were enabled to learn how they could combat future outbreaks.

It was the universal experience that the disease could be eradicated with much more certainty in the more prosperous communities, while on the other hand, in certain sections of Cavite, in which there is possibly as much ignorance and poverty as anywhere in the Islands, the disease has not yet been entirely stamped out.

Probably one of the most satisfactory results that has ever been achieved by sanitary officers was that in the town of Siniloan, in the Province of Laguna. Owing to the remoteness of this pueblo, 132 cases occurred before this Bureau was notified and could place representatives on the ground. The town is situated upon either bank of the Siniloan River, and is very compact. It was determined to try stamping out the disease upon the basis that it was only transmitted by flies. Accordingly, instructions were given to so arrange the inspection that any case of illness could be reached in a few minutes after the attack commenced and then to take the greatest precautions in disinfecting the stools of all such persons.

The success of the efforts is best shown by figures. When the campaign commenced there was an average of about 11 cases per day. After the stool disinfection was commenced, there were the following cases and deaths, and none since that time:

First day, 6 cases; 3 deaths. Second day 3 cases; 2 deaths. Third day, 0 cases; 1 death. Fourth day, 0 cases; 0 deaths.

The cholera vaccine prepared in accordance with the method of Dr. R. P. Strong, of the Bureau of Science, was tried at a number of places, but no fair test could be had, because other sanitary measures which were necessarily started at the same time always succeeded in stamping out the disease before the vaccinations could become effective.

Correspondence.

METHODS FOR DETERMINING THE DENSITY OF VARIOUS PARTS OF THE BODY, ESPECIALLY THE LUNGS, BY MEANS OF THE X-RAYS.

Boston, Aug. 10, 1906.

Mr. Editor: The picture produced on the photographic plate or on the fluorescent screen by the x-rays is, as we all know, the result of the varying amounts of x-light that have passed through differing portions of the object under observation. The density of these differing portions may be obtained by a photometer or a fluorometer. A knowledge of the density of a given part of the body may be valuable to the practitioner, as for instance in tuberculosis of the lungs or of one of the bones, the head of the tibia for example.

Method of determining the density of differing parts of the x-ray negative with the photometer and therefore of the object photographed. The x-ray negative is supported on edge at a distance of ten or fifteen feet from a lighted candle, gas burner or incandescent electric light and examined in an otherwise dark room. The amounts of light from any of the above mentioned sources transmitted through the differing parts of the negative are measured by the simplex photometer,[1] devised by Dr. Charles H. Williams, and by means of these measurements the density of the film in different portions of the negative may be compared. If the negative of a diseased lung, for instance, is being examined the measurements of the differing parts of the film, obtained by means of the photometer may be compared with those made from the normal lung on the same negative. The denser a given part of the negative may be the larger the amount of x-rays transmitted, of course, and therefore the less dense the part of the body it represents.

Method of determining the density of a given part of the body with the fluorometer. A lead tube between one and two inches in diameter and a few inches long, is fitted into one side of the Rollins' box enclosing the vacuum tube, at right angles with the axis of this tube. The outer opening of the lead tube is then put opposite the part of the chest, for example, that the practitioner desires to test to determine its density and the x-rays are allowed to pass through the tube. When examining the chest this outer opening should be narrowed until it is about three-quarters of an inch wide and one and one-half inches long. Next a fluorometer reading [2] is taken and the square of this figure gives the amount of x-rays that have traversed the chest. The Rollins box is then moved into such a position that the corresponding part of the chest on the other side is exposed to the x-rays, and another fluorometer reading is taken and the squares of the two readings compared. If one part of the chest is denser than the other, because of fluid it contains or of changes in the lung, or diminished in density as a result of emphysema, the fluorometer demonstrates the fact. If both lungs are either denser than normal or abnormally transparent, the fluorometer readings taken may be compared with a reading made from a normal lung of a person of a similar build.

When testing the lungs of a patient for tuberculosis, readings from both of these organs should be taken during quiet breathing and during full inspiration. These observations should be made with the patient in a fixed position and the opening in the cylindrical lead tube already referred to should be placed opposite an intercostal space, the proper place being determined by means of the fluoroscope, so that a rib may not interfere with the passage of the rays, either in quiet breathing or in full inspiration. After the preliminary inspection by means of the fluoroscope to determine the proper place for the opening of the lead tube, a bare fluorescent screen, three or four inches square, may be held on the side of the chest toward the fluorometer and examined, in order that the practitioner may be sure the x-light passes through this part of the chest without interference by a rib, and then withdrawn, before the fluorometer reading is taken. Two fluorometer readings should be made of each lung, in quiet breathing and in full inspiration respectively, and an average made from each two readings to exclude error. The practitioner does not have the difficulty presented by the ribs to contend with when examining other parts of the body. The examination should be made in a dark room after the eyes of the physician have become accustomed to the dark. Twenty minutes is a good length of time for this purpose.

When making examinations to determine the density of various parts of the body, either with the photometer and x-ray negative or with the fluorometer, a comparison should be made between the abnormal and normal sides.

The fluorometer is capable of recording slight differences in density, for instance the amount of rays that pass through the normal chest in quiet breathing and in full inspiration respectively can be measured and the difference determined by taking a fluorometer reading under each condition and comparing the two. To illustrate, an examination of the chest of a man about fifty years of age gave a fluorometer reading in quiet breathing of 46, square 2116, and in full inspiration of 54, square 2916 [3].

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[1] The comparison photometer gives a more accurate measurement, but is far less convenient. The fluorometer is more accurate than either.

[2] Allbutt and Rolleston's System of Medicine, second edition, 1905, I, 476-479.

[3] The fluorometer used in this case was made especially for measuring the density of the lungs and is capable of measuring smaller amounts of light than those I employ for some purposes.

Comparison between the photometric method and the fluorometric method. I have placed different thicknesses of metal on a photographic plate and after the x-ray negative had been made, have tested by the photometric method the amounts of candle, gas, or incandescent electric light that passed through the negative, and then compared the amounts of light thus transmitted with the amounts transmitted when the same plates of metal were interposed between the vacuum tube and the fluorometer. The comparison showed that the fluorometric method permits of greater accuracy in measuring slight differences in the amounts of light transmitted than the photometric method. These experiments therefore demonstrate that the fluorometer can measure differences in the density of the lungs, for instance, which could not be detected by the photometer and the x-ray negative and that it affords a more delicate means for measuring the differences in density of the various parts of the body.

The ability given by the fluorometer,[4] in connection with different thicknesses of metal plates, to measure the amount and quality of the x-rays is also of assistance in determining the length of exposure for the x-ray negative and for prescribing the proper dose when the x-rays are used for therapeutic purposes.

Yours very truly,

Francis H. Williams.

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[4] I have used impure radium and generally with a tungstate of calcium screen as a standard of light in the fluorometer. Pure radium is not so fluorescent as many specimens of impure radium, therefore it would seem as if the latter owed their fluorescence largely to the action of their rays upon the impurity. For this reason I am testing mixtures of radium with various substances that are fluorescent to it. It will require some time to determine which of these mixtures will be the best standard of light for use in the fluorometer, as they must be tested at long intervals with a standard photometer to ascertain the uniformity and permanency, or the lack of both, of their fluorescence over long periods. These tests are being made with a fluorometer that has for its standard of light a specimen of radium, that fluoresces very little, in connection with a barium-platino-cyanide screen, which is more sensitive than a screen of tungstate of calcium.

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RECORD OF MORTALITY

For the Week ending Saturday, August 4, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,482	665	Quincy	10	4
Chicago	501	188	Waltham	8	2
Philadelphia	511	213	Gloucester	—	—
St. Louis	—	—	Pittsfield	—	—
Baltimore	239	107	Brookline	4	1
Cleveland	—	—	North Adams	13	8
Buffalo	—	—	Chicopee	7	4
Pittsburg	—	—	Northampton	7	5
Cincinnati	—	—	Medford	2	—
Milwaukee	—	—	Beverly	3	1
Washington	—	—	Hyde Park	5	1
Providence	62	20	Newburyport	2	—
Boston	238	94	Leominster	3	—
Worcester	50	32	Melrose	—	—
Fall River	54	33	Woburn	3	1
Cambridge	33	16	Marlborough	4	3
Lowell	50	32	Westfield	—	—
Lynn	22	6	Peabody	—	—
New Bedford	36	21	Revere	4	3
Springfield	23	15	Clinton	3	0
Lawrence	42	26	Attleboro	5	3
Somerville	17	8	Adams	5	3
Holyoke	23	14	Gardner	—	—
Brockton	7	—	Milford	—	—
Malden	11	5	Weymouth	—	—
Salem	24	10	Framingham	3	1
Chelsea	19	10	Watertown	4	2
Haverhill	7	3	Plymouth	—	—
Newton	8	5	Southbridge	8	1
Fitchburg	12	6	Wakefield	2	1
Taunton	14	6	Webster	—	—
Everett	8	4			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUG. 8, 1906.

Kerr, J. W., assistant surgeon-general. Granted leave of absence for fourteen days from Aug. 9, 1906. Aug. 6, 1906.

Guiteras, G. M., surgeon. Directed to proceed to Ceiba, Honduras, for special temporary duty. Aug. 8, 1906.

Stiles, Ch. W., chief division zoology, hygienic laboratory. Granted leave of absence for nineteen days from Aug. 6, 1906. Aug. 7, 1906.

Cheney, E. L., acting assistant surgeon. Granted leave of absence for ten days during month of August. Aug. 8, 1906.

Foster, J. P. C., acting assistant surgeon. Granted leave of absence for twenty-four days from August 3, 1906. Aug. 2, 1906.

Gustetter, A. L., acting assistant surgeon. Granted leave of absence for thirty days from Aug. 16, 1906. Aug. 2, 1906.

Hicks, W. R., acting assistant surgeon. Granted leave of absence for six days from Aug. 7, 1906. Aug. 7, 1906.

Keatley, H. W., acting assistant surgeon. Granted leave of absence for two days from July 18, 1906, under paragraph 210 of the regulations.

Kennard, Karl S., acting assistant surgeon. Granted leave of absence for thirty days from Aug. 27, 1906. Aug. 2, 1906.

Slaughter, A. W., acting assistant surgeon. Granted leave of absence for five days from Aug. 11, 1906. Aug. 7, 1906.

Maguire, E. S., pharmacist. Granted leave of absence for thirty days from Aug. 6, 1906. Aug. 1, 1906.

Allen, G. C., pharmacist. Granted leave of absence for twenty-three days from Aug. 4, 1906, and excused for further period of one month from Aug. 27, 1906. Aug. 2, 1906.

Troxler, R. F., pharmacist. Relieved from duty at Chicago, Ill., and directed to report at Bureau, Washington, D. C., for temporary duty. Aug. 3, 1906.

Board Convened.

A board of medical officers convened to meet at Port Townsend, Wash., for the purpose of making physical examination, under immigration laws, of certain persons who shall appear before the Board. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Acting Assistant Surgeon L. T. Seavey; and Acting Assistant Surgeon R. Lyall, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING AUG. 11, 1906.

I. Longabaugh, acting assistant surgeon. Appointed acting assistant surgeon from Aug. 7, 1906.

A. McK. Jones, acting assistant surgeon. Appointed acting assistant surgeon from Aug. 7, 1906.

H. L. Smith, acting assistant surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

J. M. Moore, surgeon. Ordered to the "Puritan."

BOOKS AND PAMPHLETS RECEIVED.

Students' Aids Series. Aids to Chemistry. By T. A. Henry, D. Sc., Lond. New York: William Wood & Co. 1906.

Students' Aids Series. Aids to Surgical Diagnosis. By H. W. Carson, F.R.C.S. New York: William Wood & Co. 1906.

Students' Aids Series. Aids to Physiology. By Peyton T. B. Beale, F.R.C.S., Eng. New York: William Wood & Co.

Students' Aids Series. Aids to Surgery. By Joseph Cunning, M.B., B.S., F.R.C.S., Eng. New York: William Wood & Co. 1906.

Phlebitis and Thrombosis. The Hunterian Lectures delivered before the Royal College of Surgeons of England in March, 1906. By Warrington Haward, F.R.C.S., Eng. New York: William Wood & Co. 1906.

The Urethrotomies and Kidney Capsulotomy in Diseases and Injuries of the Urinary Organs. By Reginald Harrison, F.R.C.S. Illustrated. New York: William Wood & Co. 1906.

Diet and Dietetics. By A. Gautier. Edited and translated by A. J. Rice-Oxley, M.A., M.D. Philadelphia: J. B. Lippincott Company. London: Archibald Constable & Co., Ltd. 1906.

Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. xi. Washington. 1906.

Report of the Commissioner of Education for the year ending June 30, 1904. Vol. ii. Washington. 1906.

The Operative Treatment of Prolapse and Retroversion of the Uterus. By J. Inglis Parsons, M.D., M.R.C.P., M.R.C.S. Illustrated. New York: William Wood & Co. 1906.

Lectures on Midwifery for Midwives. By A. B. Calder, M.B., M.R.C.S. Illustrated. New York: William Wood & Co. 1906.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A.B., M.D. Illustrated. Chicago: Rowe Publishing Company. 1906.

Original Articles.

"SOME REMARKS ON THE RELATIONS OF THE GASTRO-INTESTINAL TRACT TO NERVOUS AND MENTAL DISEASES."*

BY ROBERT COLEMAN KEMP, M.D., NEW YORK,

Junior Physician to the Roosevelt Hospital, Consulting Physician Gastro-Intestinal Diseases to the Manhattan State Hospital, Ward's Island; Physician to the Red Cross Hospital, etc.

Owing to the limited time at my disposal, it will be possible to merely touch upon the most important facts in the subject that I have selected. You are all doubtless familiar with the investigations of Bouchard, Vaughan, Novy, Herter, E. E. Smith, Hamilton and others on "auto-intoxication," and it must be evident to you that my remarks will be entirely based on this theory. This field opens up enormous possibilities, and the subject I believe to be really in its infancy.

The inorganic ferments contained in the bile, saliva, gastric juice, pancreatic juice and intestinal juice, are a part of the human organism at birth. There are, furthermore, many organized ferments which are immediately acquired after birth, and which play an important part in the physiology and in the pathology of the gastro-intestinal tract. At birth this tract is sterile, and it is first infected in the newborn infant by the swallowing of air, and then with the bacteria of the food and saliva. With normal digestion, fermentation of the carbohydrates in the small intestines is produced by the micro-organisms therein to a physiological degree, the organic acids, lactic and acetic, the derivatives of such fermentation, acting as a stimulus to normal peristalsis. These acids prevent the putrefaction of albuminates within the small intestines, and partly check the decomposition of the carbohydrates. The putrefaction of the albuminates physiologically takes place in the large intestine, the contents having an alkaline reaction.

Here are developed skatol, which gives the odor to the feces, indol, phenol and various gases and the other products of putrefaction. The Bacillus coli communis is believed to be an important factor in these putrefactive processes, and the production of indol depends largely on its activity. It is not a product of pancreatic fermentation, as was formerly supposed.

Undoubtedly, putrefactive bacteria of various types are at all times present in the stomach and small intestines also, but their activity is inhibited until conditions favorable to their development arise. For example, the normal fermentation of the carbohydrates in the small intestine has this inhibitive effect.

Time will not allow me to enter into a description of the normal processes of digestion. Dietetic errors, especially if continuously repeated, the proper mastication of the food and the care of the teeth, all have an important bearing on digestion. Acid fermentation in the mouth interferes with the action of the saliva, and it has been demonstrated that cleansing the mouth of nursing infants will alone diminish fermentative processes in the gastro-intestinal tract. Changes in the gastric secretion also have an important bearing on the subject, as have also the maintenance of the normal *motor functions of the stomach and intestines*. The normal peristaltic action of the stomach and intestines are, therefore, important factors in the prevention of abnormal fermentation or putrefaction. With atony of the stomach, we have as a result motor insufficiency and stasis. It has been demonstrated that the presence of hydrochloric acid, even in considerable quantities, does not prevent gaseous fermentation or putrefaction, if stasis be present. Simple atony will often progress to chronic dilatation of the stomach if left untreated. With this, there may be increased fermentation, or putrefaction. Butyric acid may thus be produced. This is classified among the substances acting as auto-toxins. Hydrogen sulphide (H_2S) is at times found in dilated stomachs, together with other gases, the absorption of which cause toxemic symptoms.

In a recent work by Dr. William H. Thomson entitled "Graves' Disease, with and without Exophthalmic Goitre," the author holds that gastro-intestinal toxemia is the cause of this disease and describes some twenty-eight symptoms occurring in cases both with and without goitre. Curiously enough, ethylidenediamine, a ptomaine found at times by Kulneff in the liquids of the stomach, in dilatation of that organ, when injected into mice and guinea pigs, will produce exophthalmos and some symptoms found in Graves' Disease. This is of interest and certainly suggestive. Mold in the stomach, hyperacidity, hypoacidity, anacidity, chronic gastritis and achylia gastrica, may be found in dilatation of the stomach. It can thus be readily understood how perversions of the gastric digestion may be a marked causative factor in the production of additional disturbances in the intestinal tract below, and be productive of excessive fermentation or of putrefaction. A careful examination of the secretions and motor functions of the stomach is, therefore, one of the first requisites for scientific research into auto-infection from the gastro-intestinal tract.

In the small intestines, according to Ewald, prolonged action of the pancreatic juice may produce hypoxanthin, but more probably it is due to excessive putrefaction. This poison produces convulsions. Methyl guanidin, a leucomain, results from the oxidation of creatin and creatinin, and it illustrates how a comparatively non-poisonous substance may be changed into a violent poison by bacterial action. On injection of this substance into guinea-pigs, there appear fibrillary twitchings, rapid respiration, dilatation of the pupil, dyspnea, labored breathing and clonic convulsions. All these phenomena are suggestive of epileptiform attacks. Creatin is found in muscle, creatinin, a derivative, is also derived from meat taken as food, and appears normally in the urine. It is increased by meat diet, in diabetes, various fevers, such as typhoid, etc., and is diminished by anemia, etc. Methyl guanidin results, therefore, from putrefactive processes in the small intestine and probably from the large intestine as well.

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* A paper read before the Medical Association of the Greater City of New York, June 11, 1906.

Stasis of the intestine is an aid to putrefaction, just as is motor insufficiency in the stomach. Butyric acid and hydrogen sulphide are auto-toxins, which may also be produced in the small intestines. Marked auto-infection can occur in the large intestines. Among the ptomaines found after prolonged stasis are cadaverin and putrescin, which give the symptoms of muscarin poisoning. Moreover, indol, of which tyrosin is the chief source, is here developed. Herter has administered it to animals, and observed "cardiac and respiratory depression, marked contraction of the pupils, clonic spasms and increased reflex irritability." Small quantities taken daily, for several weeks, produced "untritive changes, frontal and occipital headaches, colic, diarrhea, unnatural mental activity, and a tendency to the neurasthenic state." Indol is absorbed from the intestines and forms indol-potassium sulphate, or indican, and is so eliminated in the urine. The causes of indicanuria are excessive proteid diet, catarrh of the small intestines, causing alterations in the mucosa and increased intestinal putrefaction therefrom, typhoid, cholera, etc., constipation, alimentary putrefaction, decrease of normal digestive fluids, intestinal obstruction and peritonitis. Certain drugs, such as salol, salophen and creosote will cause its appearance, whereas urotropin will diminish it.

Regarding the urinary test for this condition, Jaffe's is the one frequently employed. Rosenbach's test, which consists in boiling the urine with nitric acid, gives a Burgundy red. This also demonstrates putrefactive changes, but not invariably that indican is one of the elements. This sometimes occurs when no indican is found by Jaffe's test. The result is due to substances of a like class. Other conditions of the urine occur as a result of these toxemias from the gastro-intestinal tract, the appearance of albumin and casts, or diminished urea excretion. The kidneys may become damaged from these toxins, and in turn, toxemia from the kidneys may result. We must remember that absence of indican in the urine does not invariably indicate absence of putrefaction, as in diarrhea the indol may be, to a great extent, eliminated. In some cases, even when constipated, there are no evidences of indican, even when there are clinical signs of abnormal putrefaction. The work of Drs. Herter and E. E. Smith will give you excellent information on this topic. Finally, the functions of the liver and its relations to toxemia must be briefly considered.

You are familiar with the action of the bile in the intestines. The liver acts as a storeroom of the organism, for peptones and sugars in the form of glycogen, these substances being kept there until their final use in the system. It excludes poisonous matters from the general circulation by removing them from the portal vein and excreting them by the bile. Thus Herter demonstrates that the liver is the chief organ for the removal of indol. Various poisons and other toxins, as of typhoid, etc., are similarly destroyed, or chemically changed. Therefore, any diminution of the functional mass of the liver, or interference with its functions, impairs this property and toxemia results.

The bile itself, when absorbed into the system, acts as a poison and produces a definite toxemia. Moreover, catarrhal conditions of the intestines will often cause obstructive jaundice; or the colon bacillus may become a source of infection of the ducts and gall bladder. Insufficiency of the biliary secretion, or the absence of bile from the intestinal tract, favors, in turn, those conditions which result in auto-intoxication — due to the induced obstinate constipation, from the absence of its antiseptic and peristaltic stimulant effect, and we have the well-known symptoms of bilious indigestion. You are all familiar with the slow pulse and other symptoms of jaundice, unquestionably due to auto-intoxication. Nervous symptoms resulting from functional derangements of the liver are quite frequent.

Cholin, under normal conditions, is found in the bile as well as in the blood and brain, and in intestinal disorders its amount is increased and it may appear in the urine. In dilute watery solutions it may be transformed into neurin, which is still more toxic. Large doses of cholin cause nearly instantaneous death in cats and rabbits. In experimental poisoning, there are "dilatation of the peripheral blood vessels, lowering of the blood pressure, salivation, spastic contractions and stoppage of the heart in diastole." It is an important factor in auto-intoxication on account of its relation to nervous disorders. Neurin, a derivative of cholin, on injection into animals, causes "dyspnea, salivation, mydriasis, irregular and labored respiration, unconsciousness and clonic convulsions." Muscarin is believed to be often associated with cholin, and it also causes convulsive seizures. It is, moreover, found in mushrooms and in decomposing fish. All these substances produce epileptiform seizures.

It is interesting to note that hepatic disease may be produced experimentally by substances allied to the auto-toxins. Furthermore, poisons circulating in the blood cause a change in normal bile, by which it increases in viscidity, causing agglutination of the walls of the bile ducts, obstruction of their lumen, and consequent retention of bile within the sac. Jaundice has been thus produced.

It is evident, therefore, that the liver cannot produce normal bile from abnormal blood; and the fact that jaundice is caused by exposure to cold, syphilis, typhoid, phosphorus and other poisons, shows how easily the secretion of the bile is altered, and suggests that intrinsic poisons, which are often hemolytic in their action, may act as causes. Toxic materials absorbed from the intestinal tract, or from the urinary tract, in addition, may cause altered secretions, and the retention of bile from its own viscosity may ensue.

Having thus briefly described the relations of the gastro-intestinal functions to toxemia, at this point I wish to call to your attention several important propositions: (1) that epileptiform seizures, or even true epilepsy, may in some cases result from auto-infection; (2) that nervous, neurasthenic, or even melancholic symptoms may result from toxemia; (3) that in many cases of nervous or mental diseases, derangements of the gastro-intestinal functions with resulting auto-infection may aggravate the original condition from which the patient may be a sufferer, and thus create a vicious circle; (4) that it is our duty as physicians, as much to our poor asylum as to our private patients, to place them in the best possible physical condition.

And finally, that on the patient's admission to such institution, a thorough investigation should be made in each individual case, into the existing conditions of the gastro-intestinal tract, and appropriate treatment be instituted in each; for by this means alone can a scientific study of the relations of toxemia to nervous and mental diseases, and the results of treatment be obtained. My friend, the late Dr. Dent, was one of the first to appreciate the value of this method; and it has already been instituted at the Manhattan State Hospital, Ward's Island.

I shall first consider epileptiform convulsions and epilepsy, resulting from toxemia from the gastro-intestinal tract. I judge that you are all familiar with the fact that the carnivora are susceptible to convulsive seizures from dietetic disturbances, whereas the herbivora are exempt. It is, furthermore, interesting to note that the administration of meat to young dogs will often be productive of convulsions. The intestinal walls of infants permit the passage of proteids, whereas those of adults do not, which may account for the greater frequency of nervous manifestations in children. Moreover, red meats in every event tend to aggravate nervous conditions, and it is customary in the modern treatment of epilepsy, and in many nervous diseases largely, to eliminate them from the dietary. I have, furthermore, noted in my own cases of epilepsy resulting from toxemia, that the patients were large eaters, especially of the red meats.

Some thirty years ago, Meynert attributed epilepsy to the accumulation of a toxic substance of a proteid nature. The convulsive element is very prominent among the various autotoxins developed in the intestinal canal, notably with hypoxanthin poisoning, with methyl guanidin and with neurin, the symptoms of which we have already described. The studies of Ceni on epilepsy also demonstrate that it is of autogenous origin, and the fact that no immunity occurs from repeated attacks, and that the serum which he devised has no inoculatory power shows that the process is not bacterial in its nature. It would seem, as will now be demonstrated, that certain cases at least must have as their source, auto-infection from the gastro-intestinal tract. I shall first consider epileptiform seizures in the young.

In our study of convulsive seizures in infants and young children, resulting from the administration of improper food, or from overloading the stomach, it was possible to distinguish two classes of cases — gastric and enteric. In the gastric cases, the convulsive seizures came on a short time after the administration of food, half an hour to an hour, or even less, and emesis often produced immediate relief. I have noted acute dilatation (distention) of the stomach in these patients. Just as in adult cases, to which I shall shortly refer, I believe this acute dilatation to be caused by auto-infection, resulting from fermentative or putrefactive processes in the stomach. Such attacks, continuously repeated, may predispose to the convulsive habit, and become a factor in the production of epilepsy. Furthermore, repeated attacks may tend to render the stomach atonic, and may result in chronic dilatation, with chronic toxemia as a result. In the enteric type, the convulsions occur several hours after the administration of food, and are relieved by the use of an enema. These result from toxemia from the intestinal canal. Castor oil or calomel should then be used as adjuvants.

We may have, instead of these well-defined types, a combination of the two. Holt and many others believe that intestinal putrefaction, exciting convulsions in young children, is an important factor in the production of epilepsy. Repeated convulsions certainly predispose to the convulsive habit. On the other hand, chronic dilatation of the stomach in the young may result from improper feeding, and the products resulting may be a cause of toxemia from the stomach direct, or after entrance into the intestine. A condition of chronic toxemia may thus result. As a matter of interest we would note that rickets, which is considered one of the factors in the production of epilepsy, has often associated with it a chronic dilatation of the stomach. Furthermore, Bouchard, in his well-known work on "Auto-infection," lays great stress on the chronic toxemia resulting from chronic dilatation of the stomach. I am thoroughly convinced that many cases of disturbances of the nervous system, chorea, so-called idiopathic epilepsy, and other nervous conditions commencing in early childhood, can often be justly imputed to this type of chronic toxemia. Derangements of the liver and renal functions are often associated, or result from gastro-intestinal disturbances, and take an active part in the toxemic process. Fortunately, beneficent Nature steps in in many cases, and the toxins are eliminated, with no permanent harm to the patient; while other cases may suffer from continual absorption, from prolonged constipation, for example, without any symptoms whatsoever. There is a great difference in the individual.

I should now like to call to your attention some interesting data regarding epileptiform attacks in adults. Mangelsdorf, of Bad Kissingen, has examined over four hundred cases of epilepsy and several hundred cases of migraine, and has found acute dilatation of the stomach, just preceding or during the attacks. He made accurate drawings, in many cases, of the extent of the dilatation. Another interesting type is gastric tetany, in which gastric dilatation is a factor. Smith reports a case in which a patient with dyspepsia and gastro-intestinal flatus failed rapidly in strength, and became troubled with insomnia. Tetanic attacks occasionally occurred, in which the fingers were forced into the palms. There was trismus, and the wrists were extended and rotated outward. The patient suffered mentally, and sleep was disturbed by spectral delusions. The stomach was found to be dilated, and in a condition of ptosis, and the patient became eventually extremely asthenic. These recurring attacks were entirely relieved by lavage and non-nitrogenous diet, but when these measures were neglected, symptoms at once showed themselves. Many other authors report similar cases, and Moynihan believes it to be not very rare, and what is of extreme interest, reports five cases in which gastro-enterostomy was performed with a resulting cure in each case. This is most significant, as by thorough drainage of the dilated stomach, the source of auto-infection, was removed and the patients were cured. The brilliant surgical work of the Mayos among the nervous and insane is doubtless familiar to you.

I believe that in certain cases of marked dilatation, or ptosis of the stomach with resulting auto-infection, the field of surgery will in the future play an important part for the relief of nervous and mental diseases. Amato reports a case of gastric dilatation with tetany, resulting in death. He has introduced fermenting materials in to the stomachs of animals, and produced dyspnea, myosis, muscular contractions and trismus. The liver and pancreas (post mortem) showed lesions such as are usually found in poisonings and intoxications.

An interesting case of catelepsy, associated with tetanic spasms, has been reported to me by Dr. John C. Minor of New York. The patient suffered from chronic dilatation of the stomach with ptosis of the organ. Following an attack of constipation, or marked indiscretions of diet, she would suddenly become absolutely stiff, with flexion of the limbs, the eyes tightly closed, and would remain unconscious for a number of hours. From this condition, as she emerged into consciousness, the feet would extend, the knees increase in flexion, and there would be spasmodic twitchings of all the limbs. Between attacks, the bowels would remain extremely loose, there being many watery movements during the day. As the attack was wearing off, movements would occur — as many as twenty in number. While the patient's bowels remained loose, no attacks took place. Epilepsy, without question, may be in some cases directly attributed to auto-intoxication from the digestive tract. In the Medical *Record*, Jan. 28, 1905, appears an interesting article by Dr. Wm. P. Spratling, Medical Superintendent of the Craig Colony for Epileptics, entitled "Gluttony, or Food Poisoning, as a Cause of Symptomatic Epileptic Convulsions," which is well worth your perusal.

In a number of cases of epilepsy during the past few years, Dr. Wm. H. Thomson has secured brilliant results, with the cure of patients, from treatment of the gastro-intestinal tract. In a few instances, gastric analysis showed hyperchlorhydria, while in a number of cases there was hypochlorhydria, with or without gastric dilatation. The treatment consisted in the avoidance of red meats, intestinal disinfectants, regulation of the bowels, diet and medication suitable to the individual condition of the stomach, and, temporarily, sodium bromide, combined with antipyrin, to lessen reflex irritability and break the convulsive habit. I have treated recently several interesting cases of epilepsy, which were unquestionably due to auto-infection from the digestive tract. Time, however, will only allow me briefly to refer to one case.

A young man, aged twenty-five years, with a negative family history, came to me for treatment, having had epileptic attacks for about six months. About a year previous to this, he had been in the Philippines, where he had a severe attack of dysentery. Since that time he has been troubled with occasional mucous discharge from the bowels. For some months past, however, he has been constipated, belches gas from the stomach, and has water brash and a sour taste in his mouth; the tongue is coated. The gastric symptoms are more marked before his attacks. He has averaged one attack a month for four months, and during the last two months has had seven attacks. The early attacks were between 7 and 10 P.M., but more recently they have been from 4 to 7 A.M. They clearly follow extreme indiscretions in diet, and the mother of the patient (who is a trained nurse) sent him to me for treatment, believing that gastro-intestinal disturbances were the factors in the case. In the early morning, he would be awakened by abdominal discomfort, then the hands would begin to twitch, the wrists and arms would flex, then these would be raised automatically to the level of the head, and he would then become unconscious. The tongue was bitten during a number of the attacks. Examination of the stomach showed: Total acidity, 120 plus; free hydrochloric acid, 90 plus, a condition of hyperchlorhydria. There was intestinal tympanites, and some odor to the stool. Constipation was marked. The patient was shut off from red meats, smoking and drinking, and placed on a simple diet, especially a light supper. The bowels were freely opened with calomel, and thereafter kept carefully regulated. He was given benzoate soda gr. x t.i.d. for the intestinal putrefaction; and soda bicarb. gr. x to xx t.i.d. an hour after meals for hyperacidity. Soda bromide gr. x four times a day; one of the doses at bedtime was given to break the convulsive habit. This treatment was continued, but the bromide was gradually diminished, and then finally stopped entirely.

For four months he had no attacks. He then ate a large amount of candy during the afternoon and evening, and promptly had an attack early the next morning. Calomel was given, and the bromides were begun again, and in a few days dropped. During the next three months, he had three attacks, all following indiscretions in diet, and since then has been perfectly well — a period of nineteen months so far, by merely taking gastro-intestinal treatment and exercising care in diet. This case would seem to be of interest.

I have noted several other cases, where there was hyperchlorhydria with atony of the stomach, and a number of hypochlorhydria and dilatation.

The etiology of epilepsy is of so great interest, that Dr. Wm. H. Thomson has instituted a general research into the subject at the Manhattan State Hospital, Ward's Island, in which in each epileptic patient the organs of the body are examined by the various specialists who visit this institution and abnormalities, if present, are corrected. The gastro-intestinal tract is investigated and appropriate medication is given such as may be indicated in each case. The bowels are carefully regulated, and lavage is employed if required. Intestinal antiseptics, such as benzoate of sodium, resorcin, sodium salicylate and sulphocarbolate of sodium are given. The red meats are omitted. Bromide of sodium with antipyrin is administered, to lessen reflex irritability and break the convulsive habit. Matzoon is made in the hospital especially for these cases. These patients live as much as possible in the open air. Photographs of trans-illuminated stomachs were taken in about fifty cases. The results secured were as follows: Females, total number 44 cases; gastroptosis, 18; dilated stomachs, 24; stomach in normal position, 2. Males, total number, 6 cases; dilatation of the stomach, 5; stomach in normal position, 1.

The motor functions of the stomach were examined, and the analysis of the gastric contents were made with all these patients. These factors were considered in making the diagnosis. There was abnormal secretion even in the stomachs occupying the normal position. These data are certainly suggestive. There has been marked improvement in some of the cases, but it is too soon to report definite results. Of course, many of these asylum patients are of the worst type, and in some, degenerative changes have occurred in the brain. Nevertheless, even under such conditions, auto-intoxication can be minimized and susceptibility to convulsions can be diminished by proper treatment.

On Thanksgiving Day all the epileptics were given a full diet, and every case had an exacerbation of convulsions. This is interesting and suggestive.

There seems to be an unfortunate disposition on the part of neurologists to consider various gastro-intestinal disorders invariably to be the result of nervous or mental disease. They are, in some cases; but I think that we have, even at this point, fully demonstrated that in others at least the gastro-intestinal disturbances are primary.

You are all familiar with the symptoms resulting from chronic constipation, such as headache, drowsiness, inability to concentrate the attention, general *malaise*, etc. Duprey, in the *Lancet*, 1902, I, 1832, cites the following interesting cases, illustrating types of toxemia as a result of this condition:

Case I. A woman of thirty-five years suddenly became unconscious, with rapid and shallow breathing, pulse 96, temperature normal. Examination of the urine showed no signs of nephritis; attention to the bowels was followed by recovery.

Case II. A young man suddenly became unconscious, but could be roused from his stupor only to talk incoherently and relapse into the unconscious state. Heart, lungs and kidneys were normal. Recovery after free evacuation of the bowels.

Case III. A child, three years old, with a history of constipation, suddenly expired while playing. Autopsy showed no condition which could account for death, except that of fecal distention of the descending colon. Some, on the other hand, have no symptoms resulting, even from prolonged constipation. There is great difference in individuals.

Many nervous conditions, neurasthenia, mental depression and melancholia, can be imputed to auto-intoxication. Brokers and professional men, with irregular habits of life, constitute almost a class in themselves. Bolting the food, or excessive eating or drinking, rich food, etc., are factors in the production of hyperacidity, motor insufficiency, dilatation of the stomach, constipation, and auto-intoxication, with resulting disturbances of the nervous system, and the treatment of the gastro-intestinal conditions will rapidly restore the patient's nervous tone in many cases. Mental depression often accompanies, or is a symptom of, toxemia, and this condition may even progress to depressive insanity. Among other symptoms of auto-infection from the digestive tract, are apathy, insomnia, somnolence and inability to concentrate the attention. Resulting from the auto-intoxication of jaundice, we may have all grades, from mental depression to melancholia and insanity. It may cause coma, muscular twitchings, convulsions and death. Stern reports a case of narcolepsy in which, having excluded syphilitic endarteritis, he imputes the condition to auto-infection, resulting from dilatation of the stomach and hyperchlorhydria. Hamilton offers the following conclusions, having made a special study of the digestion and urine in the insane: " Varying and fugaceous illusions and hallucinations, pallor, increasing exhaustion, verbigeration, confusion and unsystematized delirium, are due to auto-intoxication.

" Auto-intoxication is common in alcoholism and the drug habits. Epileptiform attacks are directly connected with putrefactive conditions in the intestines." I have already referred to the work of Dr. Wm. H. Thomson, " Graves' Disease, with and without Exophthalmic Goitre."

He holds that the toxin is formed first in the alimentary canal, and then remains in the circulation on account of disturbance of the thyroid. He believes that implication of the thyroid is secondary, just as is the enlarged spleen in some cases of chronic ague. I have already referred to the suggestive fact that ethylenediamine, a ptomaine, found in some cases of dilated stomach, will produce exophthalmos on injection into animals.

Another interesting class of nervous cases, resulting from auto-infection, are those in which ptosis of the gastro-intestinal tract is the primary factor. There are various types of this condition, from those of a mild degree to the extreme condition described by Glinard. With the descent of the stomach and intestines, there is a nephroptosis of the right kidney, sometimes of both, and there may be, in addition, ptosis of the liver and spleen. There is no time this evening to review the etiology.

The gastric condition may be one of hyperchlorhydria, or of hypochlorhydria, or even achylia gastrica.

Undoubtedly, many cases of neurasthenia, treated with brilliant results by the Wier-Mitchell rest cure, are the result of gastro-ptosis. Rest and the putting on of fat to increase intra-abdominal tension are of value in ptosis. Rose's adhesive plaster belt is of service in the treatment of these cases, as it supports the organs and increases intra-abdominal tension. At the Ward's Island Clinics, we were the first to employ the moleskin plaster for the belt. The zinc oxide on moleskin, 7 inches wide, and manufactured by Johnson & Johnson, is the best for this purpose.

I consider mucous colic to be one of the manifestations of Glinard's disease, and the neurasthenic condition present in this disease to be the result of auto-infection. These views are given in *American Medicine*, Mar. 4, 1905.

I believe that many cases of neurasthenia in women are due to auto-infection, associated with ptosis of the viscera, and I have seen excellent results secured from the treatment of the latter condition. In extreme cases, surgical measures, such as revision of the abdominal muscles, shortening the lesser omentum, etc., may be necessary. Nephropexy, when there are urinary changes from malposition of the kidney, and the mental disturbance can be directly imputed to the patient's knowledge of this condition, would be indicated, as in a recent brilliant result secured by my friend Dr. Bickham. For the physician to emphasize the danger of a floating kidney to a nervous woman, is most pernicious. A large percentage of cases of Splachnoptosis can be cured by "the putting on of fat" alone.

I have already called to your attention that auto-infection from the gastro-intestinal tract may, in many cases, even when there are organic changes in the brain, create a vicious circle and aggravate the symptoms.

Such derangements occur also in syphilis, from alcohol and drug habits, as well as in other conditions. For example, I present on Plate I, some interesting data in thirteen cases of dementia paralytica, investigated by the late Dr. Dent. You will note a diminution in the frequency of the convulsions, and a lowering of the temperature in these cases, resulting from regulation of the bowels and the treatment of the gastro-intestinal tract, appropriate to each case. I also pass around Plate II, the gastro-intestinal chart for the study of auto-infection. We hope, in time, to examine every case in the hospital after this method. These charts will be found on the last report of the Manhattan State Hospital for the year 1905. The study of the relations of the gastro-intestinal tract to nervous and mental diseases is of great importance, and if I have succeeded in arousing your interest, I shall feel that I am well repaid.

PLATE I, MANHATTAN STATE HOSPITAL
RESEARCHES IN DEMENTIA PARALYTICA

Some interesting preliminary research work in this condition has been carried out at the hospital. These data are from 13 cases. The convulsions were diminished and the temperatures were lowered as a result of the regulation of the bowels and treatment of the gastro-intestinal tract appropriate to each case.

TABETIC TYPE,	CEREBRAL TYPE.
Four cases.	Nine cases.

Hyperacidity, 1 case, with slight dilatation of stomach.

Achylia gastrica, 1 case.

Hypoacidity, 11 cases, with two severe types of chronic gastritis.

Dilatation of stomach, 11 cases.

Gastroptosis, 2 cases.

Chronic constipation marked, 13 cases.

Odor to breath, 13 cases.

Evidences of putrefaction in gastro-intestinal tract, 13 cases.

Temperature: no result from treatment in 2 cases (one of these had infected bed sores).

Temperature: lowered in 11 cases, and in some very decidedly, and remained so (rectal irrigation aided lowering in 3 cases).

Convulsions; none occurred at any time in seven patients.

Convulsions diminished in frequency in five patients by treatment.

Attacks of syncope (equivalent to convulsive seizure) absolutely stopped by treatment, 1 case.

Died, 1 case.

These cases show that auto-infection from the gastro-intestinal tract has a decided bearing on the condition of these patients. The study of the relations of auto-infection from the gastro-intestinal tract to nervous and mental diseases is therefore of importance. Further investigation into paresis is being carried on at the hospital.

PLATE II
MANHATTAN STATE HOSPITAL, WARD'S ISLAND

Name: E. S. Age: 28. Ward: 24.
Date:
Diagnosis: ac. melancholia.

GASTRO-INTESTINAL CHART

Diagnosis.

Stomach.

Percussion
Normal position
Atony
Splashing sound
Dilatation
Palpation

Nephroptosis Gastroptosis
Vomiting
Ewald's Test Breakfast Residuum Aspirated cc.
Reaction Total Acidity Free HCL.
Uffelmann's Test Pepsin Rennet Starch Digestion
Mucus Blood Hyperacid Normal
Anacid Hypoacid Achylia Gastritis Fermentation
Liver *Spleen* *Kidneys*
Intestines
Percussion Palpation
Movements
Normal Irregular Constipation Diarrhea
Mucus Blood Odor
Enteroptosis
Treatment Results

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GASTRIC ULCER AND CANCER.*

BY CHRISTOPHER GRAHAM, B.S., M.D.,
Physician to St. Mary's Hospital, Rochester, Minnesota.

In offering this paper to the state society I have in mind chiefly to present the past year's (1905) experience that bears upon the etiological relationship that exists between ulcer and cancer of the stomach.

In the later nineties our attention was strongly attracted by the many long histories of "dyspeptic" trouble that preceded cancer of the stomach, and the thought that ulcer was this precancerous condition became firmly implanted. Since that time this class of cases has been followed out with more or less care and from time to time placed before you for consideration. Each succeeding year has strengthened our belief and with the more careful pathological examination of the excised parts we stand to-day on firmer footing.

The clinical histories have not held to so high a point as they did the first three years, but the average for the whole term is still about 60%. While the clinical evidence falls somewhat the pathological is quite remarkable.

In 1903 we demonstrated pathologically that 15% of gastric cancers had ulcer base and in 1904 this per cent easily reached 18. This added to our clinical record was satisfactory to our hypothesis. The year 1905 has presented its clinical proof in a fairly definite manner, a little less than one half (47-49%) of the cases have histories ranging from three to thirty-seven years' duration. If to these we add those of two years' standing the per cent reaches 61.

Convincing and satisfactory as a long pre-cancer history may be, it is not necessary that it shall be manifest in order to declare that ulcer was the precursor; first, because cases with short histories and absolute pathological proof are multiplying daily; second, attacks may be weeks, months, years separated and the earlier disturbance quite forgotten in the present severer form. These long periods of latency are quite frequently noted when carefully developing the history of a present annoying condition; third, many cases of hemorrhage, perforation and obstruction have had no previous history whatever, or if any but brief and slight and yet the lesion proved to be ulcer of long standing. Cancerous change may take place in these latent forms and the first symptoms may be manifested only when obstruction, hemorrhage, perforation or poisoning has advanced to a decided degree. Fourth, cancers with a history of one to six weeks, yet so advanced that an operation cannot be undertaken, can scarcely be considered as lacking a period of latency of some nature.

In view of the fact that ulcer may, and often does, have a latent period of years; and that cancers with short (manifest) histories frequently do show old ulcer base, it seems just to assume that many, if not all, rapidly developing gastric cancers have found a fertile soil on a previously developed ulcer area.

Though perhaps not yet absolutely demonstrable it seems to me that hyperchlorhydria (or hypersecretion) precedes ulcer and is a constant causative factor and that ulcer is the precursor of cancer; at any rate the histories are often typical of this and the findings abundant in proof.

In eliciting the history of gastric cancer there are three types found: (1) Those in which the initial symptoms were slight and a long latent period has intervened; (2) those in which the acute symptoms seem suddenly to attack the patient in the very midst of health and (3) those with a long series of repeated attacks which are evidently precancerous. In the first and third the precancerous history is that of ulcer; what the precursor is in the second is being determined through surgery and skillful pathological technique.

Basing conclusions on the many histories taken at our clinic, I would distinguish about *four* stages in gastric ulcer development and would expect cancer when it did develop to appear in the third or fourth stage or often to be the fourth stage.

(1) In the first stage of ulcer there is unusually good appetite with nutrition at par or even excessive; pain two to five hours after meals, when the stomach is empty or emptying itself; the heartier the meal the longer and more complete the sense of stomach satisfaction, (over active digestion) perhaps some gas and sour eructations; occasional vomiting of small amounts of sour bitter liquid; stomach normal as to position and size; excess of hydrochloric acid, otherwise normal. These patients present themselves to be relieved of pain which they say comes after meals, but which, in reality, is premeal pain.

(2) The second stage may be established some months later, following several intermissions with recurrences, each increasing more or less in severity; appetite good, though perhaps not above normal; less satisfaction follows the hearty meal; pain is severe and comes sooner after food; distress or discomfort may be present even when so-called pain is absent, gas is usually complained of; sour eructations common; vomiting of sour, bitter acrid fluid at times mixed with food is frequent; a sense of relief follows vomiting for a greater or less period; loss of flesh often noted during the attack either through voluntary or prescribed dieting; rapid gain takes place during

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* Read before the Minnesota State Medical Society, June 21, 1906.

intermission. Perhaps some dilatation; acidity high or normal.

(3) In the third stage desire for food may remain, it may be fair or decreasing, but the patient is afraid to eat because of distress, pain, gas, vomiting, sour eructations, bloating or sour burning stomach; there is but short food relief if any; perhaps obstructive symptoms; loss of flesh usual, and even cachexia may be present. Constipation, marked in all stages, is usually obstinate here. Stomach dilated and prolapsed, hydrochloric acid normal, lessened or even absent; blood may be found during any stage at test meal, but more frequently here than previously because other conditions being equal the chemical and mechanical powers of the stomach are such that blood destruction (digestion) is retarded.

It is often extremely difficult to mark the distinctive period of transition of the third stage, which is ulcer, into a fourth which is cancer, so imperceptibly may it take place. Some patients are weak, emaciated and even cachetic, with ulcer the only lesion (1) if the motor power of the stomach be greatly interfered with, or (2) if the lesion be large and destruction great even in the presence of mild obstruction. Here the transition may begin and though all possible diagnostic means and precautions are taken, yet sometimes a differentiation cannot be made until widespread degeneration removes all hope of cure. But when the clinician is awakened to his important task he will at least reach the point of honest suspicion and call *legitimate* surgery to his aid.

Many times one does find symptoms that offer a basis for differentiation. Pyrosis increases in amount, but is, perhaps, less acute in character. Often on stooping or during the night fluid which has some acidity pours from the stomach and awakens the patient; gas, bloating and a distended discomfort increases. Pain, nausea and vomiting are more constant and more often excited by liquid food, but the pain is usually less intense; appetite may persist to quite the end, but, as a rule, it gradually lessens until finally the patient may turn from food with nausea. Nervousness and languor are combined; weakness and faintness creep on; the patient's ability to exert himself decreases rapidly; anemia may come speedily; the flesh wastes decidedly; a languid air, a paleness about the eyes, nose and mouth, associated with a pinched expression (a toxemic look) are common. All this points directly to a transition.

The character of the pain changes; it is dull, sickening, more continuous but not so regular in recurrence and more wearing. The severer attacks come at unexpected times; as a rule sooner after food and are not so acute. There is more relief from eructations of gas and vomiting. The pain is more diffuse and not so often eased by pressure or position. Localization of pain, though not always very definite in ulcer, is much less so in cancer. As in ulcer, if perforation has taken place there may be a wide field of radiation, otherwise the epigastrium is the seat of pain. As cancer progresses diffuseness of pain increases. The diagnosis must, however, occasionally be made in the absence of pain.

Vomiting, always a prominent symptom, usually intensifies as malignancy creeps on. It is more irregular, longer between attacks, more copious (unless there be a contracted stomach from diffuse infiltration), and gives even more relief; the vomitus is rancid, often foul, acid and obnoxious; all these symptoms vary in intensity according to obstruction and destruction; but the chief characteristic of cancer vomiting is that food taken several hours or even days before returns poorly macerated and with undigested masses in it and even this perhaps when pyloric obstruction is slight (cancer paralysis). Vomiting is, as a rule, accompanied with less retching in cancer than in ulcer and blood more frequently seen though in small quantities; mucus is, perhaps, oftener seen while bile is a rarer accompaniment. If there has been a long period between the ulcer symptoms and the recent cancerous change (Type 1) the diagnosis is usually easier because of the constancy, the rapid approach, and marked character of the symptoms. There may be a short but persistent period of flatulence, bloating, lessened appetite and loss of flesh and then the sudden burst of malignancy so often remarked in the other type (Type 2) that clinicians say attacks the patient in the very height of good health. In these two types we most often meet tumor and in many other respects are they so similar that we would be led to consider them counterparts — the early symptoms in the one being overlooked or forgotten by the otherwise healthy individual.

Motor power lessens rapidly as cancer progresses and if pyloric obstruction is acute and the other symptoms are intense *dilatation* advances rapidly; organic acids increase and hydrochloric acid decreases and blood is more often and more easily detected. Finally, it is the (general) composite pathological picture that the patient presents at the clinic quite as often as the symptoms he urges upon you that fixes the period when the benign has yielded to the malignant (condition).

Fourth, when we reach the undoubted fourth stage (cancerous) the whole picture intensifies, "and he who runs may read." The appetite is poor or absent, or even the smell of food may be repulsive. Meats and fats are especially avoided. Emaciation follows rapidly, often more so than can be accounted for by loss of appetite (toxic or perhaps food delay); strength drops from under the patient, languor is intense and he exerts himself with difficulty; the anemic-cachectic condition develops more and more clearly. The body becomes emaciated, the skin dry, wrinkled and lemon yellow. Pain increases and is constant, boring and undermining, less acute and more sickening; food, if tolerated, almost immediately increases it; frequent vomiting of quantities of poorly macerated and undigested food, rancid and offensive, coffee-ground color; blood more copious, oftener and more easily detected because of the further decreased or absent motor power; sour stomach, sour eructations and gas become distressing; obstinate constipation, mental depression, extreme languor, cachexia, prolapse, dilatation, tumor, lactic acid fermentation, absence of hydrochloric. When these are present, the condition scarcely remains in doubt.

The picture of cancer where no obtainable precancerous symptoms are elicited, or where a long period has elapsed since symptoms are recalled, is practically that of the late stages of those with long preceding history. One must be ready to diagnose cancer of the stomach with one or few symptoms, the general condition and pathological picture of the patient bearing out the meager findings.

In our series of cases the males and females ran in proportion of 4 to 1 and ranged in age from twenty-nine to seventy-six years, the average being a little over fifty. About three fourths of the whole number presented themselves for amelioration of symptoms that had been pressing, for one year or less — that is, previous symptoms had not been so alarming that medical aid had been anxiously sought, or to put it fairly, malignant manifestations had been present for only one year or less, the average being a little less than five months. Twenty-three (23) of the number that presented long histories complained of malignant symptoms only a year or less, the average in this number being a trifle more than five months. This seems to have a significant bearing — the same soil in each instance.

In this series of 1905 pain was rather constant. In 8 the histories did not state either way, one said no pain, the remainder (73) openly declared for pain, most of them complaining rather bitterly.

Vomiting was not recorded in 11 histories, 3 stated no vomiting, while the great number (68) complained more or less severely. In 42 the lesion was situated at the pylorus or lesser curvature, 3 at the cardia. The location was not recorded in many of the inoperable cases, but the symptoms, for which the operation was undertaken, most often spoke for pyloric end or lesser curvature location.

Of the whole number operated upon 67 had test meals and other routine stomach examinations, chemical and physical. Tumor was present 27 times and doubtful in 3 more. Dilatation present 54 and obstruction 36 times. In 32, free hydrochloric acid was present ranging from 1–50 acidity; combined in 32; lactic, 42; fatty, 19; both hydrochloric and lactic, found 13 times. Blood was found often. During the last eight or nine months there were but 10 patients in which it was not found at test meal. The preceding three or four months it was not so often found, doubtless because of less careful technique.

There were 39 cases in which a portion of the stomach was removed and submitted to the pathologist, Dr. Louis B. Wilson, for macroscopical and microscopical examination, a full report of which he has in preparation. I here give in brief the results: in over half (54%) (21 in number) the pathological evidence was good that cancer had developed on an old ulcer base, in one fourth (25.60%) (10 cases) the evidence was fair that the same was true, while 8 gave no evidence of preceding ulcer irritation. Then in over three fourths (79.5%) the pathological evidence was good or fair that ulcer was first as a cause. Twenty-one (21) of the thirty-nine (39) had long histories, fourteen (14) of which gave good pathological evidence, six in which the histories were long, gave evidence considered only fair, 7 cases whose histories ranged from two months to two years gave good pathological evidence, and 4, the histories of which covered from one and one-half months to two years, offered fair proof. Histories and pathological findings ran together both positive in over half (54%) the cases.

The above figures seem to emphasize two points: (1) That short histories and ulcer as the old lesion on which cancer is engrafted are not incompatible, as some argue. (2) That ulcer is the great and fertile soil of cancer.

THE ADVANTAGES OF SEPARATE ORGANIZATIONS FOR TRAINING SCHOOLS AND HOSPITALS.

BY ALFRED WORCESTER, M.D., WALTHAM, MASS.

In Fliedner's school on the Rhine, where seventy years ago modern nursing is generally considered to have begun, the hospital is only one of several departments of the mother institution. This, essentially, is the status of all hospitals and training schools belonging to religious orders, both Protestant and Catholic. There are many advantages as well as disadvantages in such a relationship. But before particularly considering the advantages and disadvantages of any one of the different arrangements now existing, we should first give at least a hasty glance over the whole field.

The greatest advance in the evolution of the new profession of nursing was the establishment, in 1860, of the Nightingale Training School for Nurses in connection with St. Thomas's Hospital. Although both this school and hospital have been from the first more or less identified with the established church, as indeed is the case with most of the English schools and hospitals, still in the main the school is non-sectarian and at any rate it was the first to emphasize the separation of the nurse's profession from the religious orders. Among English speaking people the Nightingale Training School for Nurses may, therefore, rightly be said to have inaugurated a new profession. In all its details the school was planned by the foremost nurse who has ever lived. It was and it is distinctly an educational institution, in affiliation with the hospital, but under the management of a separate board and supported by separate endowment. The superintendent of the school holds double office, for she is also the matron of the hospital.

In the establishment of training schools on this side of the ocean Miss Nightingale's advice was besought and at first was faithfully followed. The first training schools were thus organized separately from the hospitals but in affiliation with them. Had these schools been as properly endowed as was the Nightingale School, it is not unlikely that this relationship would have continued.

The wonderful increase in the number of training schools during the last quarter century has been primarily due not to a widespread educational movement for the benefit of young women, in order to fit them in the best possible manner for the subsequent practice of nursing, but rather to the recognition on the part of hospitals that student nurse service is better and cheaper than any other nursing service available. Owing largely to this economical discovery the number of hospitals in the country has increased tenfold within the past twenty years, and nearly every one of them now owns a training school. Hospital nursing meanwhile has been revolutionized. Too much cannot be said in praise of its present efficiency.

In Great Britain there has been the same departure from Florence Nightingale's ideals. But in Germany, with very few exceptions, the public hospitals still prefer to depend for their nursing service upon independently organized training schools.

There are thus three principal kinds of relationship between training schools and hospitals to consider. First, where the educational institution owns and manages the hospital; second, where the hospital owns and manages the school; and, third, where the two institutions are under separate management but more or less closely affiliated.

(1) To the first class, as we have already seen, belong the hospitals and schools of the Protestant deaconesses and the Roman Catholic sisterhoods. Some of them are very old and famous. But in this scientific age it is generally believed that such connection between the hospital and church has been outgrown. No doubt the Deaconesses and Sisters have been slow in adopting scientific methods; nor have they fully grasped the fact of the separation that has come about between the nurse's vocation and the outward practice of religion. But many of these institutions are now rapidly improving their training schools and also making them nonsectarian. They have a tremendous economical advantage over other hospitals. And it is not at all unlikely that we shall yet see a great revival of the church hospital and training school, as we have lately seen in this country a great development of church day schools.

(2) In America the hospital ownership of its training school is nearly universal. Although many of the hindrances to nursing advance are due to this subservience of the educational to the eleemosynary institution, nevertheless, so firmly is this custom entrenched that even those who recognize its great disadvantages still accept the arrangement as inevitable. But the tide is turning, and there are many signs that the emancipation of nursing schools is at hand.

It is surely well for those who are interested in the education of nurses to look squarely at all the obstacles thereto. We can then plan to surmount them. Almost all of our hospitals are governed by trustees, who are elected or appointed solely for the efficient and economical management of the hospitals. The nurse's training schools belonging to these hospitals are merely side shows. Whatever interest in them the hospital trustees may have is due only to their anxiety for most efficient and economical nursing service. The resident physician or medical superintendent of the hospital is merely the salaried agent of the trustees. It is his first business to suit them. And the matron of the hospital and superintendent of the training school is merely one of his assistants.

Of course, as we all know, some hospital trustees and some hospital superintendents are also interested in the higher education of their nurses beyond the hospital's immediate advantage, but in such men this is a secondary and not a primary interest. In point of fact it is seldom even that much; for there are very few hospital trustees in this country who make the management of their hospitals a matter of first interest. What, then, can be expected of them in advancing the profession of nursing! It would be just as sensible to expect hospitals to manage medical schools to the advantage of the profession of medicine as it is to expect any advantage to the nursing profession from the hospital's ownership and management of the training school. The hospital depends upon practically gratuitous nursing and medical service from students of nursing and of medicine who are glad of the opportunity for practice that such service affords. If it be said that the medical students who serve as internes must have had previous education in the medical schools, it can be as truly observed that student nurses ought also to have preliminary and preparatory education before being given practice in the wards. And why, it may well be asked, should it be expected that young women must learn their anatomy and physiology, for instance, while hard at work, when their brothers in the medical school are allowed all of their time for these studies? The unfairness of this discrimination against the nursing profession is not lessened by the fact that a shorter course of preparatory education is needed for the student nurse before she begins the actual practice of nursing than is needed by the medical student before he is given practice even in out-patient assistantships.

All medical schools offer opportunities for this preparatory education. Why do not all training schools do likewise? There is but one answer. The hospitals which own the training schools think they cannot afford the expense of preparatory courses. And yet many of these same hospitals pay to their student nurses in small monthly stipends as much as proper preparatory courses would cost.

The cause of this and also of other glaring anomalies in the present régime is easily found in examining its development. Before their training schools were started the hospitals depended for their nursing service upon hired servants often of the lowest class. When these toughened women were displaced by student nurses the same wages were paid and too many other of the same conditions remained in force. It is very true that many of these hardships have been ameliorated; but the fact remains that hospital student nurses do not yet have anything like a fair chance for acquiring such an education and training as will best fit them for future usefulness.

The defenders and advocates of the present system of hospital owned training schools maintain that the only education needed by nurses can be acquired in the actual nursing of a great many cases. We need not stop to discuss this proposition, further than to point out the fact that only a certain amount of nursing service can be given by any one nurse and therefore it matters not by how many hundred or thousand other cases she is meanwhile surrounded. For even if it be admitted that a nurse's proper education is provided for in the opportunity to see and to nurse a great number of patients, it surely cannot be gainsaid that the variety of cases thus available is, at least, of equal importance.

In a great general hospital there is, it is true, a large variety of cases. The medical internes have the chance of seeing many rare diseases and very many cases of the common diseases. To a less extent, the student nurses also have this advantage. But inasmuch as hospitals admit only certain forms of human helplessness it necessarily follows that the hospitals afford their nurses correspondingly restricted opportunities for their education. Thus, in one hospital there are no contagious cases, in another no obstetrical cases, and so on. Worse than this, the special hospitals that receive only women patients, or children, or only mental or nervous cases, all have their training schools.

Some few hospitals have lately tried to arrange for their student nurses exchanges of service, but this movement, which is of great educational promise, is beset with difficulties. The interests of the different hospitals clash, and even where they are virtually under the same management, this exchange of service, after having been proved most desirable from the educational point of view, has been discontinued. Such arrangements for the broader education of nurses, however, can very easily and naturally be made by the independent schools.

But, even with all the possible advantages of service in several different hospitals, there is still lacking in hospital training schools the opportunity of learning how to care for the common everyday ailments and invalidisms and helplessnesses, which are never admitted or, if by accident admitted, are never allowed to remain in hospitals. And yet in the actual practice of both physicians and nurses by far the larger service is to just such patients.

Not only are nurses whose training has been solely in hospital wards under the disadvantage of never having even seen many of the common forms of human helplessness; but they go out to private practice under the still more serious disadvantage of never having learned to take care of patients in their own homes surrounded by their families. This is the chief cause of the dissatisfaction, on the part of the medical profession and the laity, with modern nurses. When the patient is acutely sick, and especially when a serious surgical operation is necessary, then the modern nurse is recognized as a blessing. She is then in her own element, for success depends upon transforming the home into a hospital. But, when the successful treatment of the patient as well as the happiness of the patient's family, depends, as nine cases out of ten it does depend, upon keeping the home from being turned into a hospital, then the modern nurse is not so sure of being thought an angel. For it is one thing to be able to take excellent care of a dozen patients in a hospital ward, where all materials are at hand, and where no thought need be given to the domestic arrangements, and it is quite another thing to take good care of even a single patient in her own home, where no proper appliances are available and where the whole household machinery is upset.

Of course this very different kind of nursing can be afterwards learned by graduates of the hospital schools. As we all know many such become excellent private nurses. But such ability is gained not where it should be gained, during the nurse's studentship, but in her subsequent practice where the nurse is paid maximum fees.

This serious educational disadvantage in the hospital schools is fast being recognized by all teachers of nursing, and many hospital schools are arranging for the instruction of their student nurses in district visiting nursing. What, then, prevents the general adoption of this improvement? Again the same answer: The hospitals cannot afford it, they cannot spare their student nurses.

Here we have the underlying disadvantage in the hospital ownership of its training school. In such subordination of educational ideals to utilitarian ends no real professional advance can be expected. Even in the manual training schools, where pupils are fitted only for trades, the product of the pupil's endeavors is of only secondary consequence. The pupil's education and training is the sole purpose of these schools. But in the hospital nursing schools, on the contrary, the usefulness to the hospital of the student nurse's work is the only consideration. Even her health is of minor consequence.

(3) Before considering the advantages of affiliation between nursing schools and hospitals we may well bring into view the kind of training school required by our present ideals of nursing. General agreement here can hardly be expected. For some of the growlers and grumblers against modern nurses say that nurses are already taught

too much, while others say they are not taught enough. But probably most critics will agree that the prime object of the nursing schools ought to be the education and training of student nurses for their subsequent service. And as only a small and a constantly decreasing proportion of them after their graduation find employment in hospitals, and by far the larger number engage in other service, it surely will be agreed that hospital nursing should be considered as only one department of the nurse's education and training. Two other equally important departments are private family nursing, and public service as visiting nurses, in district work and in school and tenement inspection. The ideal nursing school, therefore, should fit nurses for these three different services.

As regards the department of hospital nursing, little need be said. In that respect the training schools of the present day are most proficient. That is because the schools exist for the primary benefit of the hospitals, and because they are so entirely controlled by hospital trustees. Were the training schools controlled, as are all other schools, by educational boards whose primary purpose is the education of their students for their highest future usefulness, there can be no doubt that at least equal opportunity would be afforded in the training schools for education and training in the other departments of nursing.

For instance, proper preparation for private family nursing includes thorough education and practice in all branches of housekeeping. In wealthy households the nurse, it is true, may not need such knowledge; but in the average family, and especially when the mother is the patient, a nurse who is not a proficient housekeeper is worse than useless.

And, again, in the departments of visiting nursing and school inspecting, where trained service is now in rapidly increasing demand, proper preparation requires special courses of instruction and full opportunity for practice under teachers who have mastered these specialties of nursing. Further instances need not be specified in support of our main contention that the ideal training school must prepare nurses for the kind of service the public demands. And is it not self-evident that such training schools can be inaugurated and maintained only under the management of educational boards?

Inasmuch as more than nine tenths of our nurses are women, it is certainly fitting that the majority of the educational boards in charge of training schools should be women. And so fast as possible these boards should include in their membership graduate nurses who have become permanent residents in the neighborhood.

In the case of many of the smaller hospitals their boards of managers fulfill these requirements and might naturally be thought perfectly competent to manage the training school as well as the hospital. If so, it still is important that there shall be two separate organizations, even of the same people, as managers of the two very different institutions — the hospital and the school.

But it is of far greater importance, than the composition of the board of trustees, that the direct management of the nursing school shall be vested in a faculty of teachers. This requirement is a *sine qua non.* No real school can possibly be otherwise managed. Without schools so managed no profession can advance.

If this ideal of the nursing school be accepted, that it shall be managed by a faculty of teachers responsible only to a board of trustees, a majority of whom shall be women, then the advantage of an organization separate from that of the hospital becomes very plain, at least so far as the interests of the school are concerned. And our inquiry now should be directed to the effect upon the hospital of such a separation.

Those who believe in continuing the customary subordination of the school to the hospital are always urging the necessity of having one responsible chief, who as the superintendent of the hospital shall have absolute control of every person on the premises. That is all very well. No one will dispute that. But why should such a chief have any more control of the school that furnishes the nurses than he has over the school that furnishes the medical and surgical internes? The student nurses who are sent to the hospital for their training must, of course, while in such service be absolutely obedient to the hospital organization. Failure in this respect should in their case, as in the case of the internes, involve their instant dismissal from the hospital's service.

Moreover, it may well be provided that the matron of the hospital and her permanent assistants should also be members of the faculty of the nursing school. This would inure to the benefit of both institutions.

One great advantage of having separate organizations for the school and the hospital comes in the relief that such separation gives to the hospital management. As a member of the faculty the hospital matron can well afford to give her advice and assistance to the school. In that faculty she is in charge of the department of hospital training. But she is relieved of the overwhelming responsibility, now resting upon most hospital matrons, of managing also the preparatory and all other departments of the training school. If it works well in the best private hospitals, instead of maintaining training schools of their own to employ only student nurses from other hospitals which have their schools, why should it not work equally well in all hospitals to employ only student nurses from independently organized schools? The answer is that wherever tried this kind of affiliation between school and hospital does work well for both organizations.

If the scheme be considered only from the financial view point, the arguments are wholly in its favor. There is no reason why hospitals, supported by charity whether public or private, should pay more for nursing service than for medical service. The permanent officers of the hospital, both nursing and medical, must of course, be paid salaries; but the constantly shifting force, both of student nurses and of medical internes, if given good board and lodging, are sufficiently paid in the opportunity thus afforded for acquiring practice in their professions. Were this principle more generally recognized, the hospitals would feel more free to maintain an adequate nursing force, and the student nurses would be emancipated from many of their inherited servile hardships.

Against the separation of school and hospital may be urged the impossibility of the nurse's serving two masters. Such objection entirely misses the mark. For it is the nurse's business first, last and all the time to serve her patients in absolute obedience to medical direction. This is also the business of the whole hospital organization of which the nurse is a part. The whole purpose of the nursing school is to fit her for this service. And, therefore, in perfect loyalty both to her school and to her hospital there can be no conflict. Her duty to the one involves her duty to the other.

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Clinical Department.

A CASE OF PRIMARY ERYSIPELAS OF THE PHARYNX.

BY H. GLOVER LANGWORTHY, M.D., DUBUQUE, IOWA.

Ex-Aural House Surgeon, Mass. Charitable Eye and Ear Infirmary, Ex-House Physician, Infectious Wards Boston City Hospital, Ophthalmic House Surgeon, Mass. Charitable Eye and Ear Infirmary.

On April 3, 1906, there was admitted to the Massachusetts Charitable Eye and Ear Infirmary on the service of Dr. F. E. Cheney, a boy five years old. He had a moderately deep ulcer (left eye) with hypopyon.

Family history, not obtained.

Past history, apparently negative.

It is sufficient to say that the ulcer ran a very favorable course, clearing rapidly within a short time.

April 8, temperature, previously normal, has during the past twenty hours risen steadily to 103° F; pulse, 114; respirations, 32.

Physical examination, well developed and nourished. Moderate prostration. Pharynx deeply injected, no edema. Considerable swelling of right tonsil and superiorly in the peritonsillar region. Exudate in crypts of right tonsil. Mucous membrane much reddened. Left tonsil not enlarged, slightly reddened, no exudate. Uvula a little edematous. Moderate number of very tender glands in right neck. Skin, lungs, abdomen and ears negative.

It was supposed to be an ordinary attack of acute tonsillitis and possibly a beginning peritonsillar abscess. A culture was taken by Dr. E. J. Hussey, the ophthalmic house surgeon, and the case isolated.

April 9, culture taken yesterday showed chiefly streptococci, negative for Klebs-Loeffler. The case has grown rapidly worse. There was marked swelling in the right peritonsillar region, white exudate covering the whole tonsil. Uvula edematous. Pharyngeal wall much reddened. Left tonsil slightly enlarged and reddened. Glands in right neck greatly swollen, hard and brawny. Temperature 104° F. Marked prostration.

Incisions were made in the left peritonsillar region by Dr. C. Fisher, ophthalmic house surgeon, and myself. No definite pus located but some serum and blood evacuated.

April 10. The relief following the incision was considerable, temperature dropped to 100° F. Prostration, however, still continued very marked, patient restless and beginning to experience difficulty in swallowing. Voice not affected. Pharyngeal wall a vivid red.

April 11. Less swelling in peritonsillar region and of glands in the neck. Mucous membrane of the pharynx, both tonsils and peritonsillar region intensely reddened, thickened, glistening and rather dry. A few reddened almost vesicular areas were noticed over the soft palate. The tongue was somewhat dark in color, but not blue or black. Anatomical outlines more or less obscured because of the general edema of the whole throat.

April 12. The case was now seen to be an exceedingly dangerous attack of primary erysipelas of the pharynx. Two small areas of spreading erysipelatous inflammation about the size of a dollar became apparent for the first time on each cheek. There was great difficulty in swallowing and food taken immediately rejected by the stomach. Rectal feeding and supportive treatment was ordered. Prostration extreme and pulse weak and thready. Septicemia. Salt infusion given beneath the breasts.

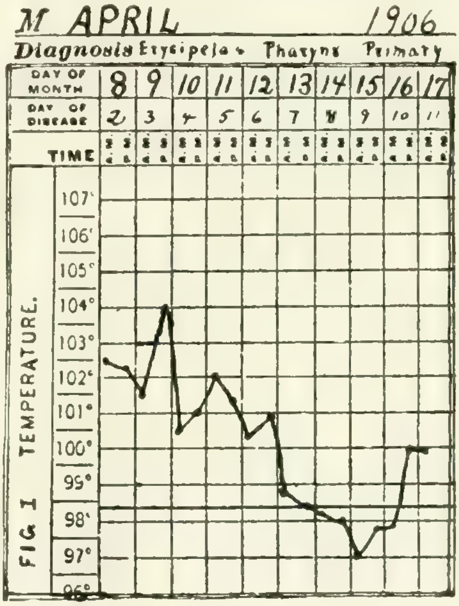

FIG. I

Dr. Wilder Tileston who also saw the case concurred with me in the diagnosis.

A very grave prognosis was given.

The boy grew weaker, pulse more rapid and on April 16, death took place apparently from septic exhaustion. Cultures of the blood were not taken. The erysipelatous inflammation on the cheeks had spread sufficiently to leave no doubt of the accuracy of the diagnosis. No autopsy.

The principal point of interest in this case is the fact that a correct diagnosis was impossible until at least two or three days after the onset of the disease. A favorable prognosis given to the parents before that time would have been regretted. The diagnosis, although suspected, was not really confirmed until the characteristic secondary inflammation appeared on the face.

There were hardly any cerebral complications or symptoms. The skin and extremities were cool almost throughout the attack. The larynx was not involved as there was at no time the slightest difficulty in breathing. It is hard to explain just why the inflammation jumped to the face while the larynx remained uninvolved. I question whether the true nature of the process would have been very thoroughly understood but for the involvement of the skin of the cheeks.

The focus of infection must have been through one of the tonsillar crypts. There had been no erysipelas in the ward. As far as we could judge the surgical incision was not the infecting focus. The urine showed a slight trace of albumen.

I gather from the various journals on the subject that a fatal termination invariably ensues. The cases are rare.

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Medical Progress.

PROGRESS IN PHYSIOLOGICAL CHEMISTRY.

BY J. BERGEN OGDEN, M.D., NEW YORK.

THE EFFECT OF INTESTINAL ANTISEPSIS ON THE EXCRETION OF HIPPURIC ACID IN THE URINE.

PRAGER[1] has found that when putrefactive changes are increased in the intestine of a dog, there is an increased excretion of hippuric acid, and that when calomel is given to make the intestine antiseptic, almost no hippuric acid is excreted. It was also shown that intestinal antisepsis has no effect whatever upon the excretion of nitrogen; also that the ingestion of gelatin alone increases the elimination of hippuric acid. Prager concludes that gelatin never builds up tissues, although it may protect the body's proteid from decomposition.

THE EFFECT OF CERTAIN SALTS AND DEXTROSE ON THE RATE OF TRANSFORMATION OF GLYCOGEN INTO DEXTROSE.

Neilson and Terry[2] have conducted a number of experiments which show that by increasing the dextrose, which is a decomposition product of glycogen, the rate of this decomposition is retarded; this bears out the fact that the products of chemical reaction retard that action, and that when the blood is rich in sugar there is a decreased production of dextrose from glycogen. Calcium chloride has a retarding action and sodium citrate an accelerating action on the decomposition of glycogen, hence sodium citrate and acetate are used as therapeutic agents to increase elimination, probably by stimulating cell activity and possibly by making the cell more permeable.

PROTEIN METABOLISM IN CYSTINURIA.

Loewi and Neuberg[3] showed by their experiments that cystin obtained from cystin stones was capable of being hydralyzed and oxidized by patients afflicted with cystinuria, and that it was the cystin obtained from protein and from urine, which passed through the urine unchanged. Alsberg and Otto Folin[4] have recently found by experiment that the statements of Lowei and Neuberg are not according to fact. These observers found that there is no difference in the behavior of the two kinds of cystin and that their cystinuria patient was capable of katabolizing amido acids. It was furthermore shown by feeding experiments with pure cystin, none of it passed through the body unchanged; the cystin sulphur was eliminated as sulphates while the nitrogen from it was apparently not put out as urea but as an "undetermined nitrogen" the remainder after the sum of the urea nitrogen, ammonia nitrogen, uric acid nitrogen and the creatinin nitrogen had been subtracted from the total nitrogen.

OBSERVATIONS UPON PHOSPHORIZED FATS IN EXTRACTS OF THE KIDNEYS.

Dunham[5] has shown that extracts from dried kidneys obtained by the Rosenfeld alcohol-chloroform method contained from one-third to two-thirds of their weights of lecithins. In a more recent paper[6] he states that repeated extractions of fresh kidneys with 85% alcohol at 45° C. will accomplish the same result that the longer Rosenfeld method obtains. Upon cooling, the alcoholic extracts yielded a precipitate from which a substance could be obtained which closely resembled the protagon of Liebreich. The yield was found to be from 0.14 to 0.2% of the fresh organ and 0.6 to 1% of the dried kidney. Comparisons of the analyses of this substance and of protagon from brain tissue shows them to be very similar. The substance from the kidney contained more nitrogen and phosphorus than that in the brain. The two substances evidently belong to the same group, for in both there could be obtained, by hydrolysis with acids, a reducing body, fatty acids, phosphorus, methyl and sulphur.

THE MECHANISM OF SALT GLYCOSURIA.

Underhill and Classon[7] have investigated this subject and they find that when sodium chloride is injected into the vein of a rabbit, polyuria and glycosuria are produced, probably as a result of the increased permeability of the kidneys. This permeability may be decreased by injecting a mixture of sodium chloride and calcium chloride as is shown by a temporary fall in the flow of urine and a lessened excretion of sugar. This form of glycosuria is evidently of renal origin because, during the appearance of sugar in the urine there is a hypoglycemia and when the excretion of sugar is inhibited by the injections of sodium chloride and calcium chloride, a hyperglycemia exists or the sugar content of the blood becomes normal. Injections of sodium chloride into the cerebral artery produces glycosuria without polyuria but with an accompanying hyperglycemia. The increased sugar content of the blood may be referred to the dyspnea induced by the injection of sodium chloride.

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[1] Medical News, lxxxvi, 1025-1027.

[2] Am. Jour. Physiol., xiv, 105-112.

[3] Zeit. physiol. Chem., xliii, 338.

[4] Am. Jour. Physiol., xiv, 54-73.

[5] Proc. Soc. Expt. Biol. and Med., i, 39.

[6] *Ibid.*, ii, 63.

[7] Am. Jour. Physiol., xv, 20-21.

THE RELATION OF CREATININ EXCRETION TO VARIATIONS IN DIET.

According to Koch [8] creatinin is excreted with remarkable constancy by dogs as well as by man, the excretion per kilo body-weight for twenty-four hours being very nearly the same for both (24–26 mgm. for the dog, and 26–30 mgm. for man). Upon an average diet, the methyl groups of the lecithins and kephalin ingested can all be accounted for by the methyl groups of the creatinin excreted; with an excess of lecithins and kephalin this is not the case although the creatinin is undoubtedly increased. Creatinin is probably a better index of methyl metabolism than of the lecithin and kephalin metabolized although the two seem to be closely related. If creatinin bears a direct relation to methyl metabolism, creatin ought to be demonstrable in every tissue having such metabolism. Koch has found it not only in striated muscle but also in heart muscle and in the testicle.

ON THE POLYMERIZATION OF GLOBULIN.

In the experiments conducted by Taylor [9] two bottles containing globulins were taken, in one an insoluble and in the other a soluble globulin. Water was added and they were allowed to stand for eighteen hours, under antiseptic precautions. He found that during this time the insoluble globulin showed a tendency to become soluble, while the soluble globulin exhibited a tendency to become insoluble. The reaction is reversible and demonstrated the probability of an equilibrium in the system.

THE FORMATION OF GLYOXYLIC ACID.

It has been found by Dakin [10] that creatin and creatinin readily yield large quantities of glyoxylic acid on oxidation with hydrogen peroxide. Smaller amounts are also obtained from glycocholic acid, sarcosine, betaine and hippuric acid. Some substance giving the reaction of glyoxylic acid is produced by the autoxidation of aqueous solutions of glycocoll, creatin and creatinin. Small amounts of glyoxylic acid can be isolated from liver, muscle, blood, urine and from culture media in which bacteria or molds have grown, but it has not been shown that its presence is the result of cell metabolism. The test suggested by Eppinger for the detection of glyoxylic acid in urine is unreliable; the presence of traces of it in the urine may be explained by the oxidation of creatinin. The addition of hydrogen peroxide to the urine gives rise to the formation of considerable quantities of glyoxylic acid.

THE EXCRETION OF NITROGENOUS MATERIAL BY THE SKIN.

Benedict [11] concludes from his investigation of this subject, that even when the individual does not have muscular exercise there is a measurable quantity of nitrogenous material excreted through the skin every day, the average quantity being about 0.071 gm. *per diem*. Hard muscular work increases the output of nitrogenous material by the skin to an average of 0.22 gr. nitrogen per day.

METABOLISM IN OSTEOMALACIA.

Goldthwait, Painter, Osgood and McCrudden [12] have made a study of this subject and the results of their investigation indicate that in osteomalacia there is first a decalcification of the bony tissue; that the calcium is partly replaced by magnesium, but probably chiefly by an organic substance which is rich in sulphur and poor in phosphorus, and similar but not identical with normal organic matrix. If castration is performed during this period the decalcification process is checked and what has been lost is regained.

THE INFLUENCE OF COPIOUS WATER-DRINKING.

Copious water-drinking has been found by Hawk [13] to produce an increased excretion of nitrogen and phosphorus by the urine. The increase in the amount of nitrogen is due primarily to the washing out of the previously formed urea in the tissues, but which has not been removed in the normal processes, and, secondarily to a stimulation of proteid catabolism. The increase in the excretion of phosphorus is due to increased cellular activity and the accompanying catabolism of nucleins, lecithins and other bodies containing phosphorus. The sulphur excretion was found to run nearly parallel to that of the nitrogen. There was a constant tendency for the largest percentage of the ingested fluid to be excreted by the urine on the days of copious water drinking.

THE CHEMISTRY OF FLESH.

Trowbridge and Grindley [14] after an extensive series of experiments, have concluded that the total acidity of an aqueous extract of flesh varies between 0.66 and 1.07%, the average being 0.85 % expressed in terms of the fresh meat and calculated as lactic acid. The residues of flesh, after complete extraction with cold water, are distinctly acid while the insoluble proteids, upon digestion with decinormal hydrochloric acid, combine with the latter neutralizing its acid properties.

Analyses prove that 13.56% of the total proteid existing in lean beef is soluble in cold water and of this total soluble proteid 90.04% is in a form coagulable by heat from a neutral solution, 8.4% exists as albumoses and a very small quantity as peptone. It is not supposed that albumoses and peptone exist as such in the original flesh.

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[8] Am. Jour. Physiol., xv, 15–30.

[9] Jour. Biol. Chem., i, 345–355.

[10] *Ibid.*, 271–279.

[11] *Ibid.*, 263.

[12] Amer. Jour. Physiol., xiv, 389.

[13] University Penn. Med. Bulletin, March, 1905

[14] Jour. Am. Chem. Soc., xxviii, No. 4, 469–505.

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Reports of Societies.

FOURTH SEMI-ANNUAL MEETING OF THE NEW ENGLAND ASSOCIATION FOR THE EDUCATION OF NURSES,

Huntington Hall, Rogers Building, Boston,
Friday, May 11, 1906.

Evening Session.

The meeting was called to order by Pres. Richard C. Cabot. The first business before the meeting was the election of officers for the coming year. Dr. Tuttle, chairman of the Nominating Committee, presented the list of names drawn up by that body. A motion was made and carried that the Secretary cast one ballot for the list as read.

In the absence of Dr. Grace Wolcott, President Cabot read the data gathered by her on the subject, " Is the Number of Applicants to Training Schools Decreasing? " The question was not discussed.

Dr. Alfred Worcester then presented a paper "The Advantages of a Separate Organization of the Training School from that of the Hospital."

DISCUSSION.

Dr. Herbert B. Howard: I do not claim for a minute but what we can have a successful training school separate from the hospital. As I have been thinking this matter over the last few days, I went back to how they used to train physicians fifty or seventy-five years ago. It was the rule for every physician to have his student. There was no hospital or medical school for him to attend, so the first year of his training always was with the practitioner. I could not help but think, as Dr. Worcester was remarking that sometimes the nurse did not know what the object of the training was, that I have heard some of these physicians say that they did not know what the object of their training was at the time, — whether it was to take care of the doctor's horse or hold it while he was in to see a patient, but they were very convenient for the doctor. The excuse for that training was, it was the best that the country afforded at that time, but they recognized that the thing to do, to train a physician, was to get him near to his patient, and when the hospitals opened, they welcomed the chance to bring the medical student close to the patient and close to a number of patients.

Nurses were trained in much the same way. We have all, I think, had those nurses that were trained in that way in the old days, and found that some of them knew more than we did on many things, and thought they knew more than we did on everything that came up.

Now, I believe myself that if you are going to train nurses, the best way to train them is to have them take care of the sick, and to have them take care of the sick as long a time as you can get them to stay in the training school. The longer you have them and the more work they do in caring for the sick, the better they will understand their work later. We recognize at the hospital that there should be a certain amount of preliminary education, that certain things can be taught outside the hospital, and the standards for admittance in most of these training schools gradually have been raised, so that we would be sure that the nurse has sufficient foundation to know what she is taught. Since I have been at the hospital, we had a nurse, well on to the second year, who thought one-sixteenth was larger than one-eighth, and she believed it. When we found that out, we thought we had better have a little examination in fractions, and that examination was carried on until we were perfectly surprised to find how little she knew. That was before the day of absolute requirements and was one of the cases that led to the raising of the standard of entrance requirements.

Now, I know Dr. Worcester has got a successful training school. I have visited it, but I am not prepared to admit that that is the best way to have it. Considerable is said about the training schools that are connected with the hospitals, but we have to consider what the hospital is first. Now, what is the hospital? Why, it is its patients. Dr. Worcester admits that the patients are first, beyond training school and everything else. Nothing should be secondary to the one thought of caring for the patient. You cannot separate the two. I do not believe that the training school should be thought, or that it should be gotten into the nurse's head that it was superior to the patient or that it required the first consideration.

You take the students that are employed at the different hospitals: when they are once put on duty at the hospital, we do not allow those fellows to consider that their school is superior to the hospital. Everything is to give way to the hospital. If they can get through their examinations, well and good; — that is their lookout, and I should say it was the same thing with the nurse. We want to make their hours sufficiently short so that they can take up enough theory to make their work intelligent, to make it interesting, but I should be free to admit, myself, that the theory and the outside work were only adjuncts, that the real thing was the doing of the work of caring for the patient. If they do that successfully, they know they will succeed, whether they have got the theory right or not. If they actually carry out the doctor's orders and actually do the things that are needed for the patient, — whether they do it right because they have done it over and over so many times that it becomes a second nature or whether they understand all the intricate theories; — for whatever reason they do it, the one that does it right, from whatever motive, will succeed, and I claim that the one that is surest to do it right is the one that has done these things over and over again, in close connection with the patient. The patient is not a theory. Anyone that has had students that have been trained in medical schools that are away from hospitals and students side by side who have been trained in medical schools will know what I mean. The one has the sublime faith of drugs and theory; he can cure anything. The other has the common sense of practice, and when he succeeds, he questions how much he had to do with it himself and how much was done by nature.

I think the same thing applies to a training school separated from the hospital. I would keep them in as close touch as possible, and I believe that the Harvard Medical School, if it could afford it, would have its medical school a hospital. I do not believe there is any medical school in the country but what, if it had the money, would have the medical school in the center, you might say the demonstration building of the hospital. I think the same is true of the training school. If the training school should be the center of the hospital, I should say it would be better.

Mrs. W. W. Vaughan: I am asked to add a word merely because I have worked on the Board of the Boston Training School for Nurses, from 1880 during the time it had a separate organization, while it was doing the nursing in the Mass. General, until January, 1906. In November, 1899, the trustees of the hospital formed an Advisory Committee, a mixed board of doctors and women with a special committee of women to work in connection with the nurses. Of this board I have the honor of being a member. These circumstances, combined with a close knowledge of the original starting and planning of the training school when begun in 1873, have given opportunity to watch the working of the training school under separate management and under trustees.

It seems to me essential to the harmonious working of a large hospital that the force should be under one control, but equally valuable and quite as essential is the official connection with the training school of a body of interested women, co-operating with the officers in charge and desirous of promoting the best work in the hospital. I think no large body of women do so well with only the official oversight of men trustees.

In starting the training school in connection with the Mass. General, various things made the separate management of the training school of great advantage to the experiment. The opposition of many of the trustees to the training school nurses was lessened by doctors and ladies interested. All the early work of the training school was experimental and the labors of this committee were undoubtedly a great factor in its success. After watching the results of the work for a good many years, I should feel that the best results of training in a large hospital could be obtained in a school under the management of a hospital and its trustees, but with the addition of some board of working men and women associated with the trustees and animated with the desire to promote the best form of training for nurses. In small hospitals, an outside board of training is, no doubt, perfectly practical, and I do not think that Dr. Worcester has in mind any very large hospital. He spoke, as I remember, chiefly of the training in private hospitals, and I am speaking of the result of training in a very large general hospital, and the management and the conditions of those two can hardly be compared.

Dr. Geo. T. Tuttle: I do not think one could have presented the argument for separate organization of the training for nurses better than Dr. Worcester, and as he read his paper, I almost believed everything he said, but I cannot help thinking there is something wrong with it. There is a little difficulty there. If your school is separately organized from the hospital, still the relation must be very intimate. The hospital gets better nursing at a lessened expense; the nurses get an opportunity for better work, which no amount of theoretical teaching can offset. If either is more independent than the other, I think it is the hospital. In these days, a hospital could get trained nurses, or head nurses, taking young women with no training, and do their work better than they used to, but at a considerable loss of reputation and not so well as it ought to be done.

You may say, on the other hand, that the nurse can get her training outside the hospital. Well, she can, at a great expenditure of time and at a decided loss in experience. So they seem to be so mutually dependent that some of us think they had better be under one head. Perhaps, looked at from the highest standpoint, Dr. Worcester may be right, but we never can attain perfection in this world, and I must say that I think the fact that the hospitals appreciate the advantages of training schools and have established them themselves for their own advantage, — if you will, for the advantage of their patients, has resulted in the large number of training schools that there are in this country; and if the Nightingale system had been retained, that is, if hospitals had not gone into the work of training their nurses, there would have been very few training schools in this country. Earlier in the movement, it was necessary, I suppose, for private enterprise to start these schools and show the hospitals what they were worth to them, but I do not think that private enterprise would have carried the matter so far as it has gone now, and the great number of schools has been the opportunity of the young women to get a sort of an education, even if not the very highest, to get a good, practical education as nurse. That not only is for the advantage of the hospital, but for the advantage of the public. We never should have had so large a corps of nurses valuable as private nurses if the hospitals had not begun and continued to do this work. So, looked at from that point of view, I think the present arrangement is the best we can have.

So far as I have observed, there is no great income in the business of education. Colleges are always poor, even though they seem to be liberally endowed. The public supports schools for the children in which they are taught some practical things nowadays. It even supports normal schools for the instruction of professional teachers, but it would be a long time before cities, towns or states would ever support a training school for nurses. You cannot get the legislatures to even register nurses, when it does not cost them anything, and if they have to spend money from the public treasury, the time won't come in our day.

Now as to the question what it means to us if the hospital has its own school. Its first object is to take care of its patients. Its second is to, perhaps, teach the nurses. Well, that is true to a certain extent. The welfare of the patient should be the first and greatest aim of the hospital, and when the patient is best taken care of by the best methods, the nurse is getting her best opportunity for instruction, and I do not think that a superintendent of nurses, because she is paid by the hospital and is an assistant to the hospital under the board of trustees, is any less interested in her pupil nurses than as though she were under the direction of a training school board, separate from the hospital. I do not think there is the slightest difference. I suppose the hospitals are hampered by the necessity of having a certain number of nurses. They have so many patients and they must have so many nurses to take care of them. For that reason, all these hospital schools are obliged to take in young women who are not so well fitted by education as they would like, and give them instruction in the training school. Many of them graduate. They do fairly well, but they may not be up to the best work. That is true. If, however, the school is intimately associated with the hospital, although independently organized, they would be in just the same situation. Carry the thing to extreme and suppose that all hospitals will get their nurses from schools independently organized. Those training schools would not be any better off than the hospital school is now, when they had so many nurses to furnish. If they did not have quite enough applicants whom they liked, they would have to take in others of whom they were a little suspicious, so they would not be much better off.

So far as the superintendents of hospitals are concerned, perhaps they would hesitate to increase their troubles by having more different things to coördinate. Everything must contribute to the good of the patient and the superintendent must see that everything tends that way, and it adds much to the ease of the work to have the school a part of the hospital, but that, of course, considers the hospital, rather than the nurse. Still, it is an important point when you come to consider the work of training nurses, so I think on the whole, where we cannot have everything just as we want and cannot have everything just right, these hospital training schools do a pretty good work and I do not believe we can get on without them.

Dr. L. M. Palmer: — The question under discussion as to the advantages of a separate organization between training school and hospital appeals to me on this ground. What are the objects of the two organizations? Now, it needs no argument to establish the point that hospitals are for the relief and cure and care of their patients. I think it is equally true and needs no argument that training schools for nurses are, or should be, for the education of the nurses, to which the care of the patient is a means to an end. Now, that, to my mind, is the crux of the whole situation, — what are they for? If a training school is an educational school, its object becomes entirely distinct from that of the hospital, although the hospital service is a very important part in that education, and many believe it is the whole part. I do not think so. The experience that a woman gets in a general hospital is only a part of the education of a young woman to fit her for the profession of nursing. I admit it is a chief part, but it is only a part, but to develop the womanly instinct in the woman, to make her careful of her patient, to have her understand that her patient is more than a case, that it is a human being with a soul, as well as a case, is as important as the other. I think my friend Tuttle here made the best argument possible for the separate organization when he frankly admitted that to have them all under one head made it a great deal easier for the superintendents of the hospital. That is perfectly evident. It does make it very much easier. But then, at that very moment, the nurses and their education becomes decidedly subordinate and secondary to the object of the hospital.

Now, I think I can speak fairly from experience when I give out of my own life a page and say that in my interne-ship I served under the beginning of the new régime, — part old-time nurses and part trained nurses, and I had a chance to see the difference between the two. One half of my life as a physician has been spent without the advantages of a training school and I was dependent upon city training schools for nurses. No one will go any farther than I and acknowledge gladly the value to the physician of the trained nurses from the big hospitals when they receive their training only in the wards, but my experience was this, that the nurse who has had only a ward training, when put into a private family, especially the first few times, was practically lost. She did not know what to do. She missed her head nurse; she missed her superintendent; she missed her medical house physician; she missed all the things she had been accustomed to and she was not equal to the occasion. In the last half of my practice, we have had nurses in my place trained both ways. It is a part of their training. We make the outside private nurse a district nurse for a part of the course and honestly think they are better trained nurses.

Let me illustrate further what I want to say by quoting our own experience at Framingham. Our school was started as a separate organization from the hospital. Several times during our course, the hospital has proposed a merging with the training school for nurses, and the training school has always said no. In the last year, the suit has been pressed very earnestly and many were anxious that the two should become one, and they were frank enough to say — some of them — that they wanted the earning capacity of the training school for the support of the hospital. Those who had been active in the management of the school and had always regarded its educational feature as the principal feature were not willing to be sold or to be used in that way and we still maintain a separate organization. Now, we realize there as plainly as anyone can, the advantage, yes, the necessity, of an intimate relation between the two and we have brought that about in this way: — the president and secretary of the hospital are members, *ex officio*, of the training school executive committee, and *vice versa*; — the president and treasurer of the training school are members, *ex officio*, of the executive committee of the hospital, but we have this advantage now, which we propose always to keep, — the preponderance of influence on the part of the training school is to have everything done for the best education of our nurses. It seems to me it is the key to the whole situation. I am firmly of the opininon that the principle that we have in our little hospital is equally applicable to the big hospital. It may curtail some of the influence of the hospital trustees, but those trustees have no conception of the practical detailed working of a training school. What do they know about it?

Now, by whom should the training school be controlled? It should be by ladies who can appreciate what a nurse should be and by those having had experience and by those who are the home-makers. They should say what a nurse should be and what she should know. As it is now, you have your superintendent of the hospital and superintendent of the nurse. Dr. Tuttle made this point, that they would not have any less interest in the nurse if they were one. I grant that, but while they may have the same interest, they do not have the same power, which I think is all the difference in the world. Give more influence to the women who have an idea of what the nurses are and ought to be and how they should be trained, and give them the power to say what the nurse shall have, and I have no doubt you will have a better training school.

Dr. Herbert B. Howard: So much is said about the training of the nurse in private families. Now I think we all admit that theory is all right and some of the hospitals are trying to do that, somewhat. They talk of the training of the physician. Where does the physician get that training? In private families. He gets it after he has left the hospital and in private families, excepting the few that get it in the district work, the same as our nurses do. The hospitals in New York and other places send the nurses out into district work, and a few years ago I was frankly told by one of the managers that they have to send them out into private families to support the thing.

Dr. R. C. Cabot: — In the discussion so far, you have noticed a line of cleavage. Some point out what ought to be, others what must be. This is often noticed in discussions of this kind. I do not intend to try to take up the question myself, except to touch on one or two points. Dr. Howard said, in the first place, that the care of the patient is identical with the training of the nurse. In certain respects, we can any of us see that is true; in certain respects it is not. For example, in my work at the Out-Patient Department of the Massachusetts General I have two nurses assisting in the women's room. I am very much interested in the subject of nurses and their training and do what I can to make that service worth while to those nurses, and yet I know that they waste their time while they are with me, because they are doing over and over again the same thing and are far beyond that point necessary to make it become for them a second nature. I believe that the only training for nurses is that in which they are brought in constant contact with patients, but it is easy to get too much of it; not too much of the whole thing, but too much of any part of it. What is best for the nurse is not to stay with one patient a long time, and what we get in our hospital is a compromise. If anyone says that the need of the patient is identical with the educational need of the nurse, he is not watching the facts. Those needs are partially identical: no one could think they were entirely identical. The nurses in my department stay about six weeks. In about ten days, they learn all that I can teach them about their business in that place. I will admit that I have many other duties and do not give much time to those nurses, but I think no one else gives any more and I am perfectly sure that the education of those nurses does not progress but a short portion of the time they are with me. That is true as I have seen it throughout the hospital. Some nurses, of course, do not stay long enough with one kind of work to learn it. Many others stay too long. If one had the education of the nurse and nothing else in mind, he could not help adopting a different course in regard to how long a nurse should be kept in any one place.

One other thing I have to say is in reference to Dr. Howard's statement that medical schools want to get just as close to hospitals as they can and would like to have their buildings a part of the hospital. Yes, but who controls? The medical school, every time. The medical school appoints many of the officers, including the house officers of the hospital and controls them and keeps them there as long as is good for them and no longer. They are close in their interests, — not identical. When they are identical it is to the good of education, always with education in control.

Dr. Cooke: — One might gather from what one speaker has said that unless you have your training school separate from the hospital, nurses cannot be sent out. That does not follow. There are instances where nurses are sent out where training schools are a part of the hospitals, so it is not essential, it seems to me, that they should be a part in order to give the outside training. Then there is the temptation for the separate training school which does not exist to the same extent where the training school is a part of the hospital, if we keep in mind limiting the number of nurses so that they can get a good hospital training. The temptation in both cases is to admit more nurses than there should be, in order to send more outside to earn more money, but I believe, after all, that it is a good deal who is back of either and who is given the training. Whether at the head of a hospital or a training school, get just as good a person as you can in control and then manage that person just as little as possible.

Dr. Hall: — I would like to challenge that statement concerning the commercial spirit of the trustees and superintendent. I cannot give the exact figures, but our expenses since the data of the introduction of the training school are some 200% larger in gain over the former time. That does not look like commercialism. The difficulty is to protect the patient and not have the enthusiasm of the officers connected with the school carry the nurse too far with the patient.

Thirty years ago, as I recollect it, there were 300 trained nurses. I believe that now there are something like 20,000. An army of 20,000 women in training for the practice of nursing. Now, where do they come from? Certainly not from the ranks of graduates from Wellesley and Vassar. They come from the intelligent class of women who have to be dependent on their efforts, and I think it is open to discussion whether this work would have developed to the benefit of humanity to the extent it has, had there been hindrances in the way of educational boards or any board which would hamper the work in a training school.

Dr. Worcester: — In connection with my point, I instanced as a large hospital St. Thomas' and all connected with St. Thomas' and with the Nightingale School still believe that to be the right way, and though it is the fashion in this country for medical students to depend upon Germany in finding out how to advance in surgery and medicine, but decry German nursing, and I am one of those that believe that much is yet to be learned from Germany, where the profession of nursing started, and there is but one hospital in the German empire that pretends to own its school. All the hospitals depend on separately organized schools, which are organized for the education of women, primarily, Of course, I am perfectly satisfied when Dr. Tuttle admits that the separate organization is the ideal way. However, this association, as I understand it, is to pursue the ideal, and if any may have become converted to-night to believe that there can be any benefit to women in the emancipation of the training school from its present thraldom, I shall be satisfied. I care not how kind the superintendent of the hospital may be; yet there are trustees of hospitals who grind nurses down by intent and are not honest enough to say so, and there are superintendents of nurses who do not dare to say their souls are their own, and while womankind submits to that sort of thing and is perfectly willing that the education of the profession which distinctly belongs to women shall be controlled by a body of business trustees or political trustees, appointed by whoever happens to succeed in winning the Mayor's chair, and that the school and all their interests as nurses shall be under that board of trustees as long as women are willing to do that they will continue to do so, but when women organize in the defence of their own profession and ask that their schools shall be managed, at any rate, by women, then my point will have been won that separate organization is a necessity.

AMERICAN MEDICAL ASSOCIATION.

Section on Practice of Medicine.

Boston, June 5, 6, 7 and 8, 1906.

(Concluded from No. 7, p. 180.)

DISCUSSION.

Dr. J. N. Hall, of Denver, Colo., said that the miners in Colorado worked from two to two and a half miles above sea level, and lived in camps one or two thousand feet below the mine. These men developed hearts of a weight out of proportion to the body weight. They also increased in lung power.

Dr. John C. Wilson, of Philadelphia, agreed with the essayist in his appeal for the early removal of pleuritic effusion, because the effusion was to be regarded as a foreign body interfering with the mechanicall functioning of the thoracic organs, and was liable to become a focus for producing toxins.

CYTOLOGY AND PLEURAL EFFUSION.

Dr. Percy Musgrave, of Boston, said the following cells had been observed in pleural fluids: Lymphocytes, polynuclear leucocytes, mononuclear leucocytes, eosinophilies, mast cells, endothelial cells, free and in clumps, or so-called plaques, red blood corpuscles, nucleated red blood corpuscles, masses of both sarcoma and carcinoma cells. Cells found in common in the blood and in pleural fluids differed in that the latter might have undergone degeneration. The white corpuscles, as a rule, had undergone a shrinkage, which was true in a lesser degree of the polynuclear leucocytes. The technique of the examination was described as consisting merely of the withdrawal of the fluid under aseptic conditions, which was centrifugalized for five or ten minutes. A loop of this mixture would be placed on a cover slip and allowed to dry, and then stained. The author believes that many of the differences as to the value of cytodiagnosis were due to careless technique. The author believes the method of value, and when the cytological findings were contrary to clinical findings, the cytological findings were confirmed at autopsy.

BACTERIOLOGY OF PLEURAL EFFUSIONS.

Dr. L. W. Ladd, of Cleveland, Ohio, said that an analysis of the cases reported in his paper would show that many of them, and in fact most of them where pleural effusions occurred, were tubercular, although not all. He said there seemed to be a tendency in the tuberculous pleurisies to develop on the left side with greater frequency than on the right. This was also true of tuberculous empyema. It was not always possible to demonstrate the organisms in the effusion.

RECENT ADVANCES IN THE PHYSIOLOGY OF THE CIRCULATION.

Dr. Joseph Erlanger of Baltimore, reviewed the recent work concerning the physiology of the blood pressure, paying particular attention to the principles employed in the estimation of the blood pressures in man and to the interpretation of the results obtained. He considered also the recent work relative to periodic respiration to blood pressure variations. Of the many recent contributions to the physiology of the heart, those relating to only two topics were reviewed, namely, (*a*) the survival of the mammalian heart after the death of the organism, and (*b*) conduction from auricles to ventricles in the mammalian heart.

THE HEART IN CHOREA.

Dr. W. S. Thayer, of Baltimore, gave a brief summary of some studies of the heart and blood vessels of old choreic patients treated at the Johns Hopkins Hospital ,and made comparisons of the conditions at present and during the time they were under treatment. There were altogether 808 cases, 698 of whom were treated in the dispensary and 110 in the hospital wards. Three per cent of them were colored, showing a relative infrequency of the colored. Only 71% were females. The cases were divided into three classes, first, those giving a history of one attack, 62.5%; secondly, those who had had two attacks, 20%; and, thirdly, those who had had three or more attacks, 17%. Of particular importance was the frequency of cardiac complications, or history of them, preceding, succeeding, or complicating the symptoms. There were 789 cases in which a definite history was obtained as to whether such manifestations were present or not. In 22% there was a history of rheumatism; in 78% there was no such history. Cardiac murmurs were observed in 41%; in the hospital cases, where more careful observations were taken, cardiac murmurs were observed in 85%. In somewhat under one half of the cases in both dispensary and hospital, the signs were heard which wêre indicative of functional and not organic lesions. In a little over one-quarter of all the cases, conditions were found which justified the diagnosis of organic heart disease. These lesions were mitral in 157 cases, aortic in 12, and acute endocarditis was present in 6; there were 20 cases in which definite organic lesions were present, and also an acute endocarditis at the time of observation. There were 3 cases of pericarditis. In 2 cases which came back with relapses the diagnosis of adherent pericardium was made at the time of relapses. In 83% there was no history of rheumatism, while in 17% there was. Cases without cardiac complications, 66% had one attack, 19% had two attacks, 15% had three or more attacks. Cases with cardiac complications showed 50% had one attack, 25% had two attacks, 25% had three or more attacks. These figures show that relapses or recurrent attacks brought greater danger of cardiac complications. Of the 110 cases treated in the hospital, there was only one instance in which the patient had no fever whatever; there were 4 cases in which the temperature occasionally rose above 99° F. Among 51 cases without cardiac involvement, 39.5% had a temperature between 99° and 100°, 50% between 100° and 101°. Among the cases with cardiac involvement, 15.5% had temperatures between 99° and 100°; 32.2% had a temperature between 100° and 101°.

Definite febrile manifestations without rheumatism, occurring during an attack of chorea, especially when in association with an unduly rapid pulse, might be regarded at least as strongly suggestive of evidences of a complicating acute endocarditis.

EFFECTS OF PERICARDITIS UPON THE HEART.

Dr. N. S. Davis, of Chicago, pointed out that pericarditis is not necessarily a fatal lesion. It is variously estimated that from 50 to 75% of all cases recover. Rheumatic pericarditis is, as compared to that caused by other infections, benign. Hemorrhagic and purulent pericarditis is almost uniformly fatal, always so unless recognized and successfully treated. About one third of the cases of pericarditis are serofibrinous; about one sixth are hemorrhagic or purulent; one twelfth tuberculous, and in approximately the same number there is total synechia, but in one third there are adhesions between part of the pericardial surfaces. A rapidly developing effusion is dangerous, but recovery can be effected, or life prolonged, even in the majority of the cases, by aspiration and treatment.

The prognosis must be influenced by the condition of the muscle of the heart at the time of the pericarditis. Chronic alcoholism and the cachexia of cancer, Bright's disease and tuberculosis, made slight the possibility of prolonging life.

Dr. Nathaniel B. Potter, of New York, reviewed the theories of mutual relationship between heart and kidneys, giving experimental, pharmacological, and clinical evidences. He also considered the dynamic and chemical problems. He gave an analysis of autopsies on chronic nephritis cases at the New York City Hospital during the past three years.

ANGINA PECTORIS.

Dr. James M. Anders, of Philadelphia, reviewed the various theories regarding the cause or causes of precordial paroxysms, and said that an impaired nervous vitality is to be looked upon as a marked predisposing element. The fact that angina pectoris is a neurosis of the heart is too constantly overlooked. While not desiring to underrate the causal importance of angiosclerosis, he thinks that many instances of angina pectoris are clearly the traceable results of a nervous or mental mechanism that has been overworked, with insufficient rest. This condition may be looked upon as a form of neurasthenia, but the speaker suggested the possibility of some peculiar nutritional or degenerative change in the nervous system, brought about by the high pressure changes that serve as the predisposing elements in angina pectoris.

He called attention to a form of angina pectoris which is dependent on a diet containing an excess of proteids. These cases sometimes manifested, as an associated condition, chronic intestinal toxemia. The term pseudo-angina should be retained until additional light shall have been thrown upon the whole subject. Most cases originate in vasomotor instability or irritability, and the vast proportion occur among females of the hysterical type and about the period of the menopause. True angina and pseudo-angina, therefore, have causative factors and symptoms, as pains and vasomotor disturbances, in common, but spurious angina differs from the true form in three leading particulars: (1) Gross lesions are absent; (2) it differs symptomatically, and (3) it usually yields to appropriate treatment.

Cases of pseudo-angina were divisible into the neurotic, the toxic, and reflex pseudo-angina.

QUACKERY.

In a paper on this subject, **Dr. A. Jacobi**, of New York, said that a friend of his examined 50,000 prescriptions compounded in a number of drug stores, and between 1850 and 1873 he met with no nostrums; in 1874, one in 1,500; and from that time the number increased until in 1902 and 1903, it was from 20 to 25%. In one of the large drug stores he had been assured that 70% of the prescriptions sent in by reputable physicians contained either nostrums, pure and simple, or as a part of the compound. One of the reasons for this demoralization should be generally known and appreciated, and that is that there are very few medical schools a graduate would leave, diploma in hand, with the knowledge and practice of writing a prescription.

ACUTE ARTICULAR RHEUMATISM.

Dr. Lewis A. Conner, of New York, reviewed the bacteriology of this affection, and said that one is justified in believing (1) that acute rheumatism is a specific, infectious disease, and is not merely an attenuated pyemia resulting from the common pyogenic organisms. (2) The bacillus of Achalme has no etiological relation to acute rheumatism. (3) That while there is considerable evidence in favor of the view that the disease is caused by a specific diplo- or streptococcus, there are still lacking positive proofs of the specificity and identity of this organism and of its etiological relation to rheumatism.

GONORRHEAL ARTHRITIS.

Dr. John A. Witherspoon, of Nashville, Tenn., said that there is a tendency on part of the profession to call all joint troubles rheumatism. This is far from correct. After referring to the prognosis, he stated that the treatment is as varied as it is unsatisfactory. In the acute type rest in bed, fixation of the joint, local applications of heat or cold, etc., are indicated. The internal administration of drugs rarely helps the matter, and is not advisable except to meet the symptoms. In the chronic cases general reconstructives are used and potassium iodide. All surgical interference should not be condemned. Aspiration is advised in some cases, and where there is suppuration, incision and drainage constitute the only treatment.

DIFFERENTIAL DIAGNOSIS OF RHEUMATOID JOINT AFFECTIONS.

Dr. James B. Herrick, of Chicago, stated that in arthritis deformans there are three notions partially wrong, namely, that arthritis deformans is always chronic in onset and course, does not cause fever, and begins in the small joints. In the more acute type of arthritis deformans there is not the shifting of the process from one joint to another, as in acute rheumatism. Even in the chronic cases a pulse of 90 to 110° is common. The profuse sweats of acute rheumatism are lacking. Endocardial and pericardial complications are scarcely ever seen. Salicylates are comparatively inert. The acute process is slower to subside than in acute rheumatism. Arthritis deformans is more likely to attack the temporo-maxillary, sterno-clavicular and vertebral joints than is true rheumatism. Some hesitate to declare a case arthritis deformans because of the evident presence of a considerable amount of fluid in a joint. This can often be found, as in the knee, elbow and wrist. Sometimes atrophic, not hypertrophic, changes are met with. Localized spondylitis may simulate tuberculosis of the vertebræ, with pain and other cord symptoms, due to pressure, and thus be hard to recognize. In some of these cases of local spondylitis careful research may reveal a stray joint here and there in some other part of the body involved in a typical manner, that will betray the nature of the vertebral disease. Some of the earlier symptoms described by patients sound like the stories of a neurasthenic or hysterical individual, as burning in the hand, sudden weakness in the hands, tenderness along the carpus, sudden chilliness, sudden weakness, etc. He has been deceived in one case of a hysterical woman who gradually developed one of the worst cases of arthritis deformans. The diagnosis is often helped by the x-ray revealing the bony nature of the deformities or the atrophic changes in the joints. He has never seen arthritis deformans helped by visits to springs, baths etc. One should not forget that polyarticular deforming arthritis occurs in children, often with glandular and splenic enlargement. The early diagnosis of arthritis deformans is of great importance from the standpoint of prognosis and therapy. Too often a diagnosis of rheumatism or gout leads to a restriction of diet that is useless, and a deluging of the system with salicylates, etc.

In differentiating arthritis deformans from gout, one should consider the point that gout is apt to be found in people of all classes. Tophi should be watched for; the big toe history should be taken at the beginning; examination should be made for cardiovascular accompaniments of the disease; the uric and phosphoric acid output should be studied; an x-ray will generally confirm the diagnosis. Without tophi there are cases that are baffling, and in which a provisional diagnosis may be temporarily made.

JOINT AFFECTIONS IN NERVOUS DISEASE.

Dr. L. F. Barker, of Baltimore, discussed the following joint affections: (1) The intermittent joint effusions (hydrops articulorum intermittens). (2) The arthropathies of tabes and dementia paralytica. (3) The syringomyelic arthropathies. (4) The painful joints of the psychoneurotics. The author considered, in great detail, the symptoms and diagnosis of these forms of joint affections; and then discussed the treatment.

TREATMENT OF CHRONIC NON-TUBERCULOUS ARTHRITIS.

Drs. Edwin A. Locke and Robert B. Osgood, of Boston, classified this affection into villous arthritis, infectious arthritis, atrophic arthritis, hypertrophic arthritis and chronic gout. They said the treatment was essentially the employment of methods influencing general metabolism and the local treatment of the affected joints. There are certain general régimes for all cases, with special methods for the various types. In the first place, there is the general treatment for all cases, treatment of the disturbances of the general health, *i. e.*, malnutrition, nervous debility, anemia, emaciation, obesity, etc.; treatment of the organic disturbances, *i. e.*, circulatory, respiratory, renal, etc.; treatment of infective foci, namely, of the middle ear, tonsils, genito-urinary tract, pyorrhea alveolaris, salpingitis, etc.; treatment in connection with deformity by operative measures and apparatus. Then there is the diet. Furthermore, there is the physical therapy, the treatment by hyperemia, active to lessen pain, increasing motion, favoring the action of the circulation so as to produce increased nutrition to the joint with absorption of exudates; passive, lessening the pain, reducing the inflammation, overcoming the infection. Then they considered massage, hydrotherapy and rest. Lastly, they discussed the special treatment.

In the discussion of these several papers, Dr. Joel E. Goldthwaite, of Boston, emphasized the importance of making a very thorough examination in every case, using every method available. Pathology underlies all treatment. Practitioners should do their best and contribute even a mite to the knowledge of a large subject which represents the cause of more of the helpless cripples than any other disease with which the profession is confronted. In watching cases of gonorrheal arthritis, it is his experience to observe the joint exudate and distention, a serous effusion in the joint, occurring during the first two, three, or four weeks, and then come the purulent cases, with much joint destruction. If the acute symptoms do not subside at the end of three or four weeks, he believes that operation should be resorted to to get rid of the effused material.

Dr. John Rogers, of New York, referred to the use of antigonococcal serum, which has been used in 45 cases of gonorrheal rheumatism. There were 83% of cures in the acute cases, 84% in the subacute cases, while in the chronic cases, numbering 13, only 4 were cured. He believes that antigonococcal serum is a valuable agent in the treatment of gonorrheal septicemia.

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Recent Literature.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M. (Aberdeen). Professor of Surgery, Kansas State University, Kansas City, Fellow of the American Surgical Association, Membre de la Société Internationale de Chirurgie. Second edition, revised and enlarged. With 567 illustrations, a number of which are printed in colors. Philadelphia: P. Blakiston's Son & Co. 1905.

Dr. Binnie has unquestionably filled a want in surgical literature. This is the second edition of this book. It contains a description of various operations that are not ordinarily met with in works on operative surgery and is very conveniently arranged for reference, so that the operating surgeon will want it. The book is not especially designed for general practitioners but is rather the book a surgeon will turn to who is doing his hospital work.

The present edition has been thoroughly revised; it now contains 567 illustrations, some of them in colors, and has practically all the newer operations. There are omissions, of course, but they are inconspicuous and we can only congratulate the author on his good sense in the selection of subjects to write upon. We believe it is inevitable that other editions will be called for and the danger is that the book will grow too large. Judicious pruning will alone maintain its well-earned success.

Gallstones and their Surgical Treatment. By B. G. A. Moynihan, M.S. (London), F.R.C.S., Leeds. Second edition. Revised and enlarged. Philadelphia and London: W. B. Saunders & Co. 1905.

The first edition of this work was based on a series of lectures given by the author and it was rapidly exhausted. The author has added to this a few new chapters and many new case records. A new chapter has been added on the congenital abnormalities of the gall bladder and bile ducts. It seems that the author has been criticized for going into the details of preparation for operation, but we feel confident that he is wise in retaining the chapter. The book to-day stands as one of the best expositions of this important field of surgery and has the charm of giving the author's personal points of view. Mr. Moynihan writes clearly and has the art of presenting his subject in such a manner that one reads without effort. The book is well illustrated, many of the cuts being original. Mr. Moynihan has written such a good book that it would be desirable in a future edition to add references to authorities which he cites in order that the reader may refer, if he wishes, to original sources.

Practical Rowing with Scull and Sweep. By Arthur W. Stevens. And *The Effects of Training.* By Eugene A. Darling, M.D. Illustrated. Boston: Little, Brown & Co. 1906.

This small volume of 169 pages contains within its covers much that an oarsman should know not only regarding the technical part of his work, but also regarding the conditions of his training. Mr. Arthur W. Stevens writes concisely and appreciatively of the technique of rowing, including the work of the coxswain. Mr. Stevens knows whereof he writes, having had wide experience with Harvard University crews and crews of the Boston Athletic Association. What he says will unquestionably be of value to those intending to take up rowing at its best. The second portion of the book, on the Effects of Training, by Dr. Eugene A. Darling, concerns itself with the study of the Harvard University crews from the point of view of a physician, together with certain comments on the relative effect of rowing and football on the individual. With the exception of the latter discussion, these articles were published in this Journal in 1899 and 1901. Dr. Darling presents a careful, scientific study of the important questions of metabolism under training, which should certainly prove of value in estimating the physiological effect of our more violent athletic contests.

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WALTER REED AND YELLOW FEVER.

Dr. Kelly has rendered a service not to be lightly passed over in offering to the public a biography* of Dr. Walter Reed with special reference to his great work in relation to yellow fever. The book will appeal not only to physicians but to all who are interested in great achievement. The subject matter is so carefully chosen and expressed so clearly that it requires small previous training to understand even the more technical parts of the narrative. It is an admirable account of Dr. Reed's life, and should do much to bring to the attention of the world at large the beneficent services he rendered in his noteworthy investigations on yellow fever. In fact, one object in writing the book was to revive interest in a series of investigations culminating in one of the most beneficent discoveries of the last century. No doubt partly due to the simplicity and inherent modesty of Dr. Reed's character, and partly to the fact that his publications were always in scientific journals and found no place in the popular press, the world at large has unquestionably not recognized the magnitude of his discovery. Those who knew him well among his professional colleagues and the medical profession at large, appreciated him both as a man and as an investigator, but the great public for whom his discovery brought practical freedom from a disease which for centuries had paralyzed industry and led to the loss of thousands of lives has been, in a measure, indifferent. This has been the lot of many men of science whose services have been accepted and whose names have been forgotten.

It will be remembered that following Dr. Reed's death many scientific bodies both at home and abroad expressed their sense of loss, and that during the year following, the movement originated to establish a memorial in his honor. In 1903 a Walter Reed Memorial Association was incorporated in Washington and officers were elected under the presidency of Dr. D. C. Gilman. Various committees under the jurisdiction of the association met on Aug. 15, 1903, at Bar Harbor, Me. At this meeting representative men from every part of the country were present, and it was agreed to make an effort to raise through subscription a fund of twenty-five thousand dollars, the income to be devoted to Dr. Reed's widow and daughter during their lives and thereafter the principal to be used in a suitable memorial to Dr. Reed. Circulars were issued and many subscriptions were received, but up to January, 1905, only thirteen thousand dollars had been raised. Up to this time subscribers had been limited to members of the medical profession, but the public at large were now appealed to in the following words: "An appeal is now made to a wider circle of those who appreciate the magnitude of Dr. Reed's services and the benefit he has conferred on the sanitary conditions of Southern seaports, upon the commerce and prosperity of the country at large, and upon the welfare of mankind." Since the issuance of this circular a year ago four thousand dollars have been added to the subscription, leaving eight thousand to complete the twenty-five thousand originally fixed by the association. This is an interesting history. It would have seemed an act of ordinary gratitude on the part of the medical profession and later, of the laity to have quickly subscribed the relatively small amount of money suggested by the association as the minimum amount for the purposes designed. In spite of the fact that three years have passed the subscription is still lacking eight thousand dollars of completion. It is rather a sad commentary on the attitude of the world at large toward our real benefactors. Dr. Kelly's book should, however, do much toward calling renewed attention to the labors of Dr. Reed and his associates, and so indirectly lead to the completion of the subscription which has been so slow in coming.

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* Walter Reed and Yellow Fever. By Howard A. Kelly, Professor of Gynecological Surgery, Johns Hopkins University. New York: McClure, Phillips & Co. 1906.

As a biographical sketch Dr. Kelly has achieved an unquestioned success. The book deals with the comparatively simple life of a very simple man and should serve as an inspiration to young men whose definite place in the world is not yet established. Beginning with his birth and childhood and later discussing his frontier life in Arizona and Nebraska, Dr. Kelly describes with much sympathy the beginnings of his scientific work in 1890 and his relations with the Johns Hopkins Hospital and its men of influence and distinction. Naturally, the culminating interest of the narrative is the working out and final application of the mosquito theory of the transmission of yellow fever, and a sympathetic account of his untimely death. The work of Dr. Reed's associates, Drs. Carroll, Lazear and Agramonte, is given due consideration and tribute is paid Dr. Lazear, who, it will be remembered, died of yellow fever as the result of a mosquito inoculation.

The story of the work of the Yellow Fever Commission, of which Dr. Reed was head, is certainly one of the most thrilling in the history of medical achievement. As Dr. Kelly tells it over again, it has an added interest. No one should be ignorant of the work which led up to the successful conquest of one of our most dreaded epidemic diseases and the opportunity is now offered to gain this knowledge as never before through Dr. Kelly's admirable biographical sketch of the leader in the investigation.

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JOHN WESLEY — PHYSICIAN.

There are traits by which really great men may always be recognized. Such are simplicity of character, native common sense, an instinct for humanity. To name these traits calls to mind at once Shakespeare, Bunyan, Dr. Johnson, Penn, Cromwell, Washington, Lincoln and a host of others. Probably no great physician was ever without them.

John Wesley was certainly among this goodly company. We generally think of him as a divine, but he seems to have prepared a really notable work on "Primitive Physic." In conformity with his principle that cleanliness is next to godliness he prescribed the abundant use of water both internally and externally; and he insistently counseled exercise and temperance.

Wesley's theory of the origin of medicine is of distinct scientific interest. It compares well with that of Lucretius many centuries before him; and it is quite as reasonable as the view recently propounded in a recent book entitled "Evolution, the Master Key." Physic as well as religion was probably in the first ages chiefly traditional. Both professions were pursued alike by men in that they had the welfare of their fellows at heart to an uncommon degree. The knowledge of how to repair injuries and to treat wounds, and of appropriate medication, was handed down from father to son.

In the beginning men observed the effects of various herbs upon the animals which ate them, as much of our present day therapeutics is based upon animal experimentation. Along with observation went experience, as when one afflicted with aphthæ walking in a grove of pine trees, and as a drop of natural gum falling upon him from the trees, being thoughtlessly transferred to the mouth, might result in a cure. Thus would a new remedy be discovered. Following upon experience would go investigation.

In such manner was physic built upon hypothesis until a science of medicine developed, quite out of the reach of ordinary men. As physicians, declared Wesley, grew to be an honored class, profit accrued to them, and it became their object to keep the bulk of mankind at a distance, that they might not pry into the secrets of the profession. To mystify the people and preserve intact the arcana of medicine "compounds of all sorts were invented, consisting of so many ingredients that it was scarce possible for common people to know what it was that wrought the cure." "For each disease there is one efficient remedy, which will cure as well as twenty put together. Why, then, make use of the nineteen. Only to swell the apothecary's bill; nay, possibly to prolong the distemper that the doctor and he may divide the spoil." Still there were uncommon or complicated diseases, when life was more immediately in danger, with which Wesley very wisely would have nothing to do. Here the sufferer was counseled to apply without delay to "a physician that fears God."

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MEDICAL NOTES.

Third Latin American Medical Congress. — The Oriental Republic of Uruguay will hold the third Latin American Medical Congress between the 13th and 20th of January, 1907, under the patronage of His Excellency, the President of the Republic, and an exhibition, to last two months, for the manufacturers of surgical and dentists' instruments and apparatus, and of anything that pertains thereto, and models, publications, etc., which pertain to hygiene.

Scholarship for Study of Rheumatoid Diseases. — It is announced that Dr. R. C. Brown, of Preston, Lancashire, has placed at the disposal of the University of Cambridge $750 a year for two years as a scholarship in pathology in relation to the study of the rheumatoid diseases.

A New Hospital in Washington. — According to the *New York Medical Journal* plans and specifications for a new general hospital at Washington have been completed and the contract will be awarded about Oct. 1, bids having been invited by the depot quartermaster. The building, which is to be on Brightwood Road, will cost about $300,000, and is to be of brick with a stone foundation. It will be the best example of military hospital construction and equipment in the world, as the surgeons who assisted in planning the building have inspected and investigated hospitals in all countries and have utilized this information in formulating plans for the new institution in that city.

The Calcutta Medical Journal. — We are in receipt of the first number of the first volume of a publication to be known as the *Calcutta Medical Journal*, being the journal of the Calcutta Medical Club. The articles in this first number are written almost entirely by natives, and, although possibly not going into the scientific detail prevalent in the western part of the world, the papers are for the most part clearly written and to the point. The most detailed article is one by Gopalchandra Chatterjee on the Trypanosomidæ which discusses at some length the morphology of different trypanosomes. A section is devoted to current medical literature. We trust this new venture in the field of journalism may have a wide circulation and help toward informing the world of the work done by the native physicians of India.

Decrease in the Number of Medical Students. — There seems to be no question that the number of men undertaking the study of medicine is decreasing. The *British Medical Journal* calls attention to the fact that in Canada it is remarkable how few men have successfully passed their examinations in the first year of undergraduate study. For example, at McGill University but 58 freshmen have passed into the second year, while 92 have graduated with the degrees of M.D., C.M. At Toronto University combined with Trinity, there are but 55, as compared with 70 graduates. As a rule, the first year at McGill has from 100 to 150 men, and the final year 60 to 100, the other universities showing a somewhat similar proportion. Whether it is that the general public is beginning to feel that the profession is becoming overcrowded, or that it is merely a curious coincidence that the Canadian universities should at the same period show so remarkable a drop in first year attendance, can hardly be determined in one year, and time alone can solve the problem.

A similar situation prevails in France, and statistics from other countries also show a like falling off. The *Medical Record* quoting *La Semaine Médicale*, states that the number of medical students in France is diminishing with considerable rapidity. The year 1906 shows a decrease of 1,044 over the year 1895, not counting foreign students, whose numbers had diminished 46.8%; that is, from 1,137 in 1895 to 604 in 1906. The falling off in foreign students is ascribed to the increasing strictness of the regulations for admission to the French schools, and the smaller number of native-born students is thought to be due, in part, to the same social conditions which have rendered the study of medicine less popular in Germany also, and in part to changes in the entrance examinations, military service, etc.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Aug. 7, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 16, scarlatina 5, typhoid fever 14, measles 3, tuberculosis 20, smallpox 0.

The death-rate of the reported deaths for the week ending Aug. 1, 1906, was 19.66.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Aug. 18, 1906, was 228, against 226 the corresponding week of last year, showing an increase of 2 deaths and making the death-rate for the week 19.74. Of this number 114 were males and 114 were females; 219 were white and 9 colored; 160 were born in the United States, 64 in foreign countries and 4 unknown; 45 were of American parentage, 163 of foreign parentage and 20 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 15 cases and 3 deaths; scarlatina, 10 cases and 0 deaths; typhoid fever, 21 cases and 2 deaths; measles, 4 cases and 0 deaths; tuberculosis, 24 cases and 21 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 13, whooping cough 4, heart disease 14, bronchitis 3 and marasmus 9. There were 8 deaths from violent causes. The number of children who died under one year was 85; the number under five years 106. The number of persons who died over sixty years of age was 37. The deaths in public institutions were 92.

New Floating Hospital. — The new boat of the Boston Floating Hospital made its first trip Aug. 15. The boat is very much larger than the one which has been previously used since 1897. Particular care has been taken in the new boat in relation to the ventilation and also in the heating and cooling apparatus. Owing to the need of the new boat at once certain matters relating to installation of a boiler and machinery have been put off until next winter. The new boat is 171 feet long and has a beam of 44 feet. The hull is built of steel. The entire cost of the boat is estimated at about one hundred thousand dollars, one half of which has been subscribed.

NEW YORK.

A Centenarian. — Louis Perlstein, believed to be the oldest man in New York City, died on Aug. 12. His age is given as one hundred and nine years, and until a few days before his death he had been able to go about in fairly good health. He was a Russian Jew by birth, and came to this country from Wolkvisk forty-three years ago. He leaves several children, twenty-eight grandchildren, and twenty-six great grandchildren.

Society for the Suppression of Tuberculosis. — A society bearing the name of the White League, with headquarters at Trenton, has been organized in New Jersey for the suppression and prevention of tuberculosis in that state. In a statement just issued by the League the assertion is made that some four thousand persons die annually from tuberculosis in New Jersey, giving a higher death-rate from the disease in that state than in any other state in the Union. The Society, in addition to disseminating literature relative to measures for the prevention of tuberculosis, is making a systematic effort to secure the names of all persons in the state who are affected with the disease, with a view to aiding the state health department in its suppression.

Open-Air Stereopticon Exhibitions. — The Health Department has just commenced a series of open-air stereopticon exhibitions in different parts of the city under the charge of Dr. John S. Billings, director of the Department's tuberculosis clinic, with a view to educating the masses to a clearer understanding of pulmonary tuberculosis and the proper methods of preventing and treating it, and especially to warn against the use of patent medicine " cures." Such inscriptions as the following in English and other languages are shown on the lantern slides: " Don't waste time or money on patent medicines or ' consumption cures.' They don't cure." " Patent medicines do not cure consumption; most of them are practically alcoholic drinks in disguise." Dr. Billings is of the opinion that this plan, which it is purposed to keep in operation until October, will be of more service in checking the use of patent " cures " than anything which has as yet been attempted.

Bequests to Hospitals. — By the will of Edward Uhl of New York, who died recently, $100,000 is bequeathed to the Isabella Heimath and $25,000 to the German Hospital and Dispensary. Mr. Uhl was the adopted son of the late Oswald Ottendorfer, and succeeded him as president of the Staats-Zeitung Publishing Association, proprietors of the principal German newspaper of New York. The Isabella Heimath, which is named after Mrs. Ottendorfer, is a home for the care and maintenance of aged indigent persons of both sexes, and also a hospital for chronic invalids and for convalescents.

By the will of Isaac Glazier, a former resident of New York who died at Frankfort-on-the-Main in June, the sum of $40,000 is divided among charitable objects. Among the New York institutions benefited are the Mount Sinai Hospital and the Montefiore Home and Hospital for Chronic Invalids, each of which is to receive $2,500. After the death of his wife an additional sum of $100,000 is to be set apart from the estate, to be known as the Isaac and Bertha Glazier Fund, and the income from this is to be devoted to benevolent work among Hebrews.

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Miscellany.

THE CASE OF ALBERT T. PATRICK.

The case of Albert T. Patrick, charged with the murder of William M. Rice, continues to excite a great deal of interest in the minds of medical men, and a petition in reference to it, signed by a large number of physicians, not only in New York but throughout the state, is about to be sent to Governor Higgins. This petition states that the signers, having read the medical testimony presented on a motion to Recorder Goff for a new trial of the accused, find that the conclusions of the experts who testified on the motion are quite at variance, while the questions involved are novel, as well as grave and important to the members of society, and especially to the defendant, and therefore should be justly solved. To this end they request the Governor to appoint a commission, composed of disinterested experts selected from the medical profession, to examine impartially into the questions at issue, reporting their findings at as early a date as possible, and thus avoid the possibility of mistake in the case of Patrick, as well as to secure a final and just solution of the problem.

It may, perhaps, be remembered that the death of Mr. Rice, who was eighty-four years of age, was attributed entirely to natural causes by Dr. Walker Curry, his physician, who examined the body half an hour after death and did not detect any odor of chloroform, although the deceased wore a beard. (Dr. Curry, since dead, was a highly esteemed regular practitioner of the city, and had attended the patient consecutively for eight months.) Within two hours after death the body of Mr. Rice was embalmed with "Falcon embalming fluid," which contains formaldehyde gas in solution, and in connection with this process no blood whatever was withdrawn. The autopsy, performed by Dr. E. J. Donlin, coroner's physician, was not made until forty-one hours later. The autopsy record of the examination of the lungs was as follows: "Left lung congested and edematous. Right lung same and a small area of consolidated lung tissue about the size of a 25-cent piece in lower lobe." The lungs were not preserved for more minute examination, as were some of the other organs, but were cremated with the great mass of the body.

At Patrick's trial the contention of the prosecution was that the death resulted from the administration of chloroform, and this was based largely on the condition of the lungs noted at the autopsy. The essential propositions over which the conflict of medical testimony occurred were as follows: (1) That active congestion or the lungs co-extensive with the lungs can be caused by the inhalation of an irritant gas or vapor, and by nothing else. (2) That the vapor of chloroform is one capable of causing such active co-extensive congestion. (3) That in death by chloroform the lungs are "invariably congested, and that with a congestion co-extensive with the lungs themselves." (Elsewhere particular stress is laid upon the fact that the congestion is *active.*) (4) That, notwithstanding the intensely irritant character of the fumes of chloroform, as asserted above, a cone made with a towel in which was inserted a sponge, upon which about two ounces of chloroform had been poured could be placed on a sleeping man's face without awakening him, and could be left there unsupported for over half an hour without exciting sufficient spasmodic irritation of the glottis to dislodge it; so that at the end of that time the cone was found where it was originally placed, the subject having neither awakened nor moved, although during that period of half an hour the chloroform was exerting its alleged irritant action so powerfully as to cause "active congestion of the lungs co-extensive with the lungs themselves." The jury, without considering at all the question whether the apparent pulmonary congestion noted might not have been caused by the embalming fluid employed shortly after death, rendered a verdict of guilty.

As to how far chloroform inhalation acts as an irritant to the respiratory passages, it may be stated that out of 310 recorded autopsies in cases of death from chloroform, congestion of the lungs was mentioned as being present in but 69 instances, while in 41 of those the congestion was distinctly stated to be passive. In 25 other cases it is shown to have been passive, either by direct statement of the character of the blood or by the general association of the pulmonary congestion with venous congestion of other organs. In three cases only was the congestion stated to be active, and in two of these there had been pre-existing bronchitis, while in the third the congestion is definitely described as partial. In connection with the 588 experiments on animals made by the Hyderabad Commission 42 autopsies were held. Of these, the lungs were recorded as normal in 20; healthy in 5; nothing is stated about them in 15; in one they are described as "dry, not crepitant," and in one as "engorged," though in this last the character of the blood is stated to have been venous. Ever since Patrick's trial, however, there has existed in the public mind a very considerable amount of doubt as to whether chloroform was actually administered to the deceased at all. This is owing to the very unreliable character of Jones, the valet of Mr. Rice, who, after previously making two or three totally different and contradictory statements, turned State's evidence and testified at the trial that he did the chloroforming for Patrick in the manner described above. One of Jones's statements in the witness box was to the effect that the application of a lighted match to the towel containing about two ounces of chloroform was followed by a "burning up quickly, like oil." The absurdity of this was afterwards shown by a committee of the Medico-Legal Society (mention of which is made below) whose members found by experiment that it required over fifty minutes to consume a towel thus saturated.

When the motion for a new trial (which was later decided adversely by the Court) was argued before Recorder Goff, who was the judge, under whom Patrick was tried and convicted, the principal point raised was as to whether such a solution as the "Falcon" embalming fluid, employed shortly after death and in the manner used by the professional embalmer in the Rice case, is capable of producing congestion, or apparent congestion, of the lungs in the cadaver. A certain number of medical experts employed by the prosecution testified (backing up their assertions by reports of actual experiments made by them) that such a thing is impossible, and a certain number of other experts employed by the prosecution, also backing up their assertions by the reports of experiments, testified to the opposite. In this connection it is interesting to note that in view of the special interest of the case the Medico-Legal Society some time ago appointed a select committee of experts to make a thorough investigation and give an opinion upon the medico-legal points involved in it. One of the questions put to the committee was as to whether the embalming of a human body by the arterial process with the "Falcon" solution, two hours after death and before *rigor mortis* had set in, as described by the witness in this case, would produce congestion of the lungs. The answer to this in the report of the committee, which presented the conclusions reached after much research, as well as a careful reading of the mass of evidence given at the trial, was as follows: "The embalming fluid could not produce a congestion of the lungs, or any part of the body, because a true congestion is a condition found only as a result of disease or injury occurring in a living person. But the condition found, after embalming, to the ordinary observer or to the naked eye, is so like a true congestion that a microscopical or bacteriological examination would be required to distinguish between them. Therefore, the answer to this question would be, 'Yes.'" One of the members of this committee, it is worthy of mention, was Howard S. Eckels, of Philadelphia, who during the years 1895 and 1896 studied anatomy with special reference to the circulation of the blood and the art and science of embalming, and who for the last ten years has been a practical embalmer and well-known instructor in embalming.

The execution of Patrick has been stayed by an appeal which is now pending before the United States Supreme Court, but, unfortunately, the medical aspects of the case cannot be reviewed by this Court, as they do not form part of the original record, since the questions have been raised since the jury trial. The Governor of New York, however, has, under the law, the power to appoint a medical commission to investigate these questions thoroughly and in an impartial and unbiased manner. Hence this petition from the medical profession, the members of which feel that this is a matter of the utmost importance, and one that closely concerns themselves, since the life of any one of them might perhaps one day be placed in jeopardy if the points involved in this case should not be definitely settled. When such a direct conflict of evidence can occur in matters in which it is clear that one set of experts go directly contrary to the general experience of the profession on points which have been observed and on matters of record, it would seem to be essential that the most careful and unbiased investigation and experiment should be made to determine the truth when human life hangs on the testimony of conflicting experts who, in their evidence on the question of a new trial in this case, flatly contradict one another upon points in regard to which there is no previous experience to act either as a guide or as a check.

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TO A LEPER.

Still must thou banished be, apart!
From human habitations take thy way,
While roll the centuries. Still "unclean" thou art,
Though knowledge thrives and wisdom holds her sway.
Vain seems the knowledge, wisdom but in name,
Cruel thy fate, shall we their ignorance blame?
And must thou yet, obedient to the high behest
In misery waiting, perchance with soul distrest,
Alone, in darkness left, "pursue thy solitary way?"
Unclean! Unclean! Yet is thy fate more sad
Than that of thousands, doomed alike to tread
The pathways of our cities, "white" with the living dead?
Shall not relief soon hasten, the spectre "Fear" depart
And medicine through science protect and cheer thy heart? — Edmund D. Spear.

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RECORD OF MORTALITY

For the Week ending Saturday, August 11, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,626	719	Quincy	9	6
Chicago	603	248	Waltham	8	4
Philadelphia	519	217	Gloucester	7	3
St. Louis	—	—	Pittsfield	6	3
Baltimore	212	73	Brookline	1	—
Cleveland	—	—	North Adams	5	1
Buffalo	—	—	Chicopee	13	9
Pittsburg	—	—	Northampton	4	1
Cincinnati	—	—	Medford	8	2
Milwaukee	—	—	Beverly	2	1
Washington	—	—	Hyde Park	4	2
Providence	89	40	Newburyport	[illegible]	—
Boston	237	104	Leominster	[illegible]	2
Worcester	53	27	Melrose	7	1
Fall River	38	19	Woburn	6	4
Cambridge	28	14	Marlborough	1	1
Lowell	46	21	Westfield	—	—
Lynn	30	10	Peabody	—	—
New Bedford	30	14	Revere	6	3
Springfield	22	12	Clinton	5	1
Lawrence	41	24	Attleboro	1	—
Somerville	18	5	Adams	—	—
Holyoke	29	17	Gardner	—	—
Brockton	12	1	Milford	—	—
Malden	13	6	Weymouth	—	—
Salem	27	11	Framingham	3	2
Chelsea	16	5	Watertown	1	4
Haverhill	[illegible]	4	Plymouth	—	—
Newton	7	1	Southbridge	2	2
Fitchburg	13	7	Wakefield	2	—
Taunton	17	10	Webster	—	—
Everett	6	2			

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BOOKS AND PAMPHLETS RECEIVED.

Some of the Limitations to the Eradication of Tuberculosis. By Charles Denison, A.M., M.D. Reprint.

Philadelphia Hospital Reports. Vol. VI. 1905. Philadelphia, Pa.

Treatment of Ulcer of the Stomach. By Charles D. Aaron, M.D. Reprint.

The Treatment of Gallstones with Chologen. By Charles D. Aaron, M.D. Reprint.

Address.

A CONTRIBUTION TO THE CHEMISTRY OF THE BACTERIAL CELL AND A STUDY OF THE EFFECTS OF SOME OF THE SPLIT PRODUCTS ON ANIMALS.*

BY VICTOR C. VAUGHAN, M.D., ANN ARBOR, MICH.

Part I. — General Statement.

Introduction. — For some years past the research work carried on in my laboratory has been along the line of the chemistry of the cell. The large tanks which I devised for growing bacteria in mass have enabled me to obtain cellular substance in large amount and free from extraneous matter. The results reached in the study of the material thus obtained have been given in contributions to current medical and scientific literature published from time to time by my students and myself. Inasmuch as this investigation has been quite different in conception and execution from any done by others, it has given me an unusual standpoint from which to view certain problems which are both chemical and biological, and it is my intention to present in this paper some of the conceptions which I reached concerning the structure and function of the living cell. In doing this I wish it plainly understood that, so far as the theory is concerned, I am speaking tentatively and with the light now before me, reserving the privilege of making any alterations in my conceptions which may be justified or demanded by future investigations. With this reservation and recognizing that my time and your patience are not inexhaustible, I will at once plunge *in medias res.*

The Composition of the Living Cell. — When matter becomes endowed with life, it does not cease to be matter; it does not lose its inherent properties; it is not released from the laws that govern its structure, its attractions and its motions. In studying the organized cell of living things, whether vegetable or animal, it should always be borne in mind that it is material in composition and subject to the fundamental laws that govern matter and possessed of those properties essential to matter. In order that this point, so essential to a proper understanding of the subject, should be thoroughly appreciated, it may be well to review some of the properties of matter as taught by the most advanced science of the day.

Tait says: " Matter is that which can be perceived by the senses, or is that which can be acted upon by or can exert force." Since force is the result of motion, we may say that anything and everything that moves or can be moved, or whose position in space may be changed, is matter. There are many forms of matter that can neither be seen nor felt, and can be recognized only by their motions.

Matter is indestructible; it may be successively solid, liquid and gas, but in passing through these phases it neither loses nor gains. It has always been and it always will be. It is without beginning and will be without end. Matter consists of infinitely small particles, called atoms. According to the computation of Lord Kelvin, the diameter of an atom is not greater than 1-50,000,000 of an inch; however, all atoms are not of the same size and weight. When like atoms combine they form chemical elements, of which about seventy are known. When unlike atoms combine, chemical compounds are formed and the number of these is beyond computation. Until the discovery and study of radium it was supposed that one element is never converted into another, and consequently that the number of kinds of atoms is fixed and unchangeable. However, the evolution of helium from radium apparently demonstrates the formation of one element from another and it is within the range of sanity to suppose that all the elements have been developed from a primordial ancestor, probably from the universal ether which pervades all space. Nothing has been created; everything has grown. Even silver, iron and other metals come into existence by being cast off from some ancestral element. It will be seen from this that even atoms do not represent the ultimate divisions of matter. Indeed, there are reasons for believing that the hydrogen atom consists of a nucleus about which some 700 particles or electrons revolve, and an atom of mercury is believed to consist of not less than 100,000 electrons. Atoms and electrons are in constant motion, and so small are they that the distances between them may be relatively as great as those between the planets of the solar system. The living cell is composed of molecules, made up of atoms, composed of electrons that are in constant systematic motion and may be compared to a group of stars with attendant suns, each of which is surrounded by its own planets.

Another property of matter is that it is gravitative. Every particle of matter attracts every other particle. When this attraction is manifest between masses it is called gravitation; between molecules it is called cohesion or adhesion, as the molecules held together are alike or unlike; between atoms it is known as chemical affinity or chemism.

Still another property of matter is inertia, by which term we indicate the inability of matter to change either its rate or direction of motion without being acted upon by other matter. It is of importance that this property of matter be held in mind in the study of cellular chemistry, and the proper mental picture of a cell molecule represents each of the atoms in the molecule, and each electron in each atom moving, each about its center at a definite rate. Within the living cell molecule, change in number, kind and arrangement of atoms is constant; and changes in the direction and rate of the motion of the atoms are also susceptible to the influence of other matter and are of constant occurrence. Whole groups of atoms are physiologically being dropped from the cellular molecule and being replaced by other groups split off from the pabulum upon which the cell feeds. In this way the cell renews itself and keeps itself supplied with energy.

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* The Shattuck Lecture delivered before The Massachusetts Medical Society, June 12, 1906.

Some eminent physicists are inclined to the belief that matter is made up of electric charges, but recognize that this is not a demonstrated fact as yet, and speak with caution. Lodge says: "There *may* possibly be two different kinds of inertia, which exactly simulate each other, one electrical and the other material; and those who hold this as a reasonable possibility are careful to speak of electrons as 'corpuscles,' meaning charged particles of matter of extremely small size, much smaller than an atom, consisting of a definite electric charge and an unknown material nucleus; which nucleus as they recognize, but have not yet finally proved, may quite possibly be Zero."

Cell Metabolism. — The only essential and constant difference between living and non-living matter is that within the molecules of the former there is constant metabolism, while in the latter no such process occurs. We are to conceive of the living molecule as made up of numerous atoms and each atom surrounded by its electrons; atoms and electrons are in ceaseless motion, groups of atoms are being constantly cast out of the molecule and replaced by new groups split off from matter outside the molecule. As soon as a molecule becomes the seat of assimilation and excretion it is no longer dead; it lives. As a result of assimilation it acquires the property of building up its own tissue; then polymerization follows and reproduction in its simplest form begins. The one phenomenon always manifested by living matter, and never exhibited by non-living matter, is metabolism. Verworn says: "Vital motion, metabolism, is a complex motion very strongly characterizing the living organism; it consists in the continual self-decomposition of living substance, the giving off to the outside of the decomposition products, and, in return, the taking in from the outside of certain substances which give to the organism the material with which to regenerate itself and grow by the formation of similar groups of atoms, *i. e.*, by polymerization. This is characteristic of all living substance."

I have thought to give you some *new* conceptions of the living cell, and yet it must be admitted that Aristotle apparently recognized that metabolism is the one characteristic of living matter. He said: "Life is the assemblage of the operations of nutrition, growth and destruction." This Greek philosopher did not know about cells, molecules, atoms and electrons what is now known, but it must be acknowledged that he had a fairly clear conception of the most essential characteristics of living matter. Herbert Spencer has given three definitions of life and either may be applied to the conception which I am attempting to present. The first is: "Life is the co-ordination of actions." Co-ordination between assimilation and excretion is certainly essential to life, and failure of this co-ordination leads to death. The second is probably the best definition of life ever given, and fits our conception perfectly. It is: "Life is the definite combination of heterogeneous changes, both simultaneous and successive, in correspondence with external co-existences and sequences." The third is practically the same as the second, expressed in simpler terms, but in my opinion not so satisfactorily. It reads: "Life is the continuous adjustment of internal relations to external relations." Matter is alive when it feeds and excretes. Crystals grow and in a sense they multiply, but their growth is not intramolecular; it is by accretion. The living molecule not only absorbs, it assimilates. It chemically alters what it absorbs. The atomic groups taken into living molecules enter into new combinations. The living molecule is not stable, but is highly labile. Its composition is never constant and it is never in a condition of equilibrium. There is a constant reaction between the living molecule and other molecules. Apart from other matter it could not exist. There is a constant interchange of atoms between it and other molecules. This is best seen in seeds, spores and ova. Matter existing in this form may be awakened into activity by proper stimuli; active life begins with the interchange of atomic groups, or with metabolism.

Why is there this constant atomic group interchange between the living molecule and outside matter? It is for the purpose of supplying the living molecule with energy. Allen has so ably expressed this fact that I make the following quotations: "The most prominent and perhaps most fundamental phenomenon of life is what may be described as the *energy traffic* or the function of *trading in energy*. The chief physical function of living matter seems to consist in absorbing energy, storing it in a higher potential state, and afterwards partially expending it in the kinetic or active form. We find in living matter a peculiar proneness to change its composition under the stimulus of slight changes in the energy-equilibrium between itself and its surroundings, energy being readily absorbed and readily dispersed. The absorption of energy coincides with deoxidation and the building up of large molecules; conversely, the dispersion of energy coincides with oxidation and the disruption of the large molecules. The building up of these large molecules is always accomplished by slow steps; but when formed, the said molecules are very unstable, irritable, or, in modern phrase, *labile*. They may break down by degrees in some instances; in others, their structure may be so precarious as to collapse on the slightest disturbance."

"The lability of such a molecule may be compared to that of a house of cards, which can be taken to pieces card by card, or may collapse at once. But the word lability is applied, not only to *de*-structive, but also to *con*-structive instability. The molecules of living substance are prone to constructive as well as destructive changes; but as in the house of cards, the constructive changes are the most gradual; and as the structure grows more complex, construction becomes more difficult, and collapse is more imminent. It should be distinctly understood, however, that it is not the mere size of the molecules that makes them labile, but rather the manner in which they are linked together, and the amount of potential energy which is included in the molecule."

It is probable that in the absorption of energy by the living molecule oxygen is relieved from its combination with carbon or hydrogen and is attached to nitrogen, while in the liberation of energy the reverse takes place. Nitrogen and phosphorus, sometimes with iron and manganese, seem to be, as it were, the master elements within the living molecule. It is by virtue of their chemism that groups are torn from extra-cellular matter, taken into the living molecule and assimilated by an atomic rearrangement; and furthermore, it is on account of the lability of the compound thus formed that potential energy is converted into kinetic and cell work is accomplished.

That life resides within the molecule and that metabolic processes are intramolecular are shown by numerous investigations, some of the most important of which may be briefly stated as follows:

1. So long ago as 1867 it was shown by Hermann in his studies on the metabolism of isolated muscle that the carbonic and lactic acids produced in muscular contraction result from the action of intramolecular or combined oxygen. This was demonstrated by the observation that when a muscle is freed from all its uncombined oxygen under an air pump and then caused to contract in an oxygen-free medium it gives off carbonic and lactic acids. Contraction, a vital muscle phenomenon, is thus shown to result from intramolecular changes.

2. In 1875, Pflüger kept a frog at a few degrees above zero in an atmosphere free from oxygen for twenty-five hours, and found that during that time the animal continued to give off carbonic acid and this could be produced under these conditions only through intramolecular changes. From these studies Pflüger concluded that the living content of the organism consists of proteid, which he designates " living proteid," in contradistinction to dead proteid, and the carbonic acid gas results from the decomposition of a labile proteid molecule, the nitrogenous constituents of which are capable, with the help of the fats and carbohydrates of the food, to regenerate " the living proteid molecule."

3. Recent research in my own laboratory has shown that both the toxic and carbohydrate groups of the cell of the colon bacillus are held in chemical combination with other constituents of the cell. This micro-organism will grow in a medium which contains organic nitrogen as amino compound only and with this nitrogen and inorganic salt as its sole food, it builds up by synthetical process a complex glyco-nucleoproteid, forming a large molecule which contains as atomic groups, pentose, nuclein bases, amino and diamino compounds. These constituents are held chemically in the cell; they are constituent groups of the large cell molecule. They cannot be washed out by physical solvents, and can be isolated only by chemically breaking up the cell molecule.

Besides the above-mentioned experimental data showing that cell life manifests itself by intramolecular reaction the following general considerations indicate the same thing:

(*a*) In taking its food the cell, whether it be vegetable or animal, whether it be that of an unicellular or that of a multicellular organism, manifests a selective action which can be best explained —indeed, I might say, can only be explained — on the ground that it is due to mass chemical affinity. Mass attraction is, so far as I know, never specific; molecular attraction is specific only in general terms and not in the sense of forming synthetical compounds; but atomic attraction, or chemical affinity as it is usually designated, is specific, or at least selective. This fact, as is well known, is the basis of the side chain theory of Ehrlich, who, upon this principle, explains the nutrition of cells, the action of many therapeutical agents and the production and action of antitoxins. It is well known that certain poisons have a selective action on certain tissues, and this means that the chemical affinity between the poison and the constitutens of certain cells is greater than that between this poison and other cells. If pharmacology and toxicology ever become exact sciences it will be, most probably, through investigations directed along this line.

(*b*) The fact that the secretions of cells are specific is a strong argument for the theory that action on the pabulum upon which they feed is intramolecular. The liver cells produce bile pigments and acids, each of the digestive fluids elaborates its specific products, the specific secretions of the adrenals and the thyroid gland have been studied and are now largely and successfully employed therapeutically. And still all these organs are supplied with the same blood and lymph. Certainly, the only possible explanation for these well established facts is that of a chemical reaction, or an intramolecular interchange, between the cells and the constituents of the substances with which they are brought into contact.

While other arguments might be adduced to show that metabolic processes, the only phenomena with which we are acquainted that are characteristic of all living matter and which do not occur in dead matter, are due to intramolecular reactions, it seems to me that those already given are sufficient to establish my thesis, *i. e.*, life is molecular.

If I have made good my contention so far, it follows that life begins with the capacity of growth and reproduction. The life of such a molecule depends upon its continued reaction with matter outside of itself, or, in other words, it must feed; and reproduction in its simplest form results from polymerization. In this way the wonderful experiments of Loeb upon the artificial fertilization of certain ova may possibly be explained. The ovum is not alive; it possesses only latent life and when acted upon by certain stimuli it begins active life. The stimulus may be a spermatozoon or some inorganic salt in a certain definite strength of solution.

If life be molecular, it is possible that its lowest manifestations are without form. They may be infinitely small, and it is not beyond the range of possibility that they may exist in either or all the three known conditions of matter, solid, liquid or gas.

Cellular life is the only form of life that we know at present, but the statement *omne vivum e cellula* is dogmatic and probably is not true. It is too early yet to predict what influence more exact studies of viruses that pass through porcelain filters will have upon this dictum.

The Cell not the Unit of Life.—The following quotation from Nussbaum, as given by Loeb shows that the biologist recognizes that the cell is not the unit of life: "The cell is not the ultimate physiologic unit, even though it must remain such for the morphologist. We are, however, not able to tell how far the divisibility of a cell goes, and how we can determine the limit theoretically. Yet, for the present it will be well not to apply to living matter the conceptions of atoms and molecules, which are well defined in physical chemistry. The notion, introduced by Nægele, might also lead to difficulties, as the properties of living matter are based upon both nuclein and protoplasm. . . . The cell, consequently, represents a multiple of individuals."

Pflüger has shown that the egg, which has been thought to be a biologic unit, can give rise to many individuals, and Loeb states that his own experiments, as well as those of Driesch, confirm this finding.

It is highly probable that the lowest forms of life cannot feed upon proteids. This is true of the yeast cells. These cells grow rapidly when placed in a solution of sugar and nitrates, but proteids must be broken up by putrefactive bacteria before the yeast organisms can feed upon them. Indeed, many of the cells in the body of man cannot feed upon complex proteids, which must be split up by the digestive enzymes into much smaller and simpler groups before the cell molecules can feed upon them. Even the carbohydrate, starch, must be hydrated and its elements rearranged as constituents of a more labile molecule before it can become a source of energy in muscle. Proteid solutions injected into the blood of man are poisonous, but the same substance, after being properly split up, is an essential cell food.

Some light has been thrown upon the chemistry of the growth of the cells of germinating seeds by the researches of E. Schulze and his students. As is known, the seed consists of the germinating cell and the stored-up food material. The cell in a lupine seed is not actively alive; it possesses only latent life. When placed under conditions favorable to the development of active life, a ferment begins to break up the proteid food material stored in the seed and as a result of the chemical cleavage induced by the ferment relatively simple nitrogenous bodies, such as the amino acids, tryosin and leucin, and the diamino acids, arginin and lysin, are formed. These bodies serve as food material for the germinating cell and latent life is quickened into the active form and growth begins.

If the characteristic phenomena of life are due to intramolecular reactions, we must conceive of the living cell, whether it belong high or low in the scale of development, as consisting in its essential or vital part of a chemical compound made up of complex molecules, composed of atoms each surrounded by its electrons, all in motion and with a constant, probably a rythmical, absorption of atomic groups from other molecules, and with a like constant discharge of atomic groups.

This living molecule feeds by splitting off such groups as it may need from the pabulum within its reach, or it may absorb entire molecules, at the same time rearranging the atoms and making them a part of itself. When in ordinary physiological function, a portion of this molecule, which we may designate its chemical nucleus, remains undisturbed and regenerates the whole, supplying its waste by the absorption of new material. Cellular assimilation consists in properly locating the recently acquired atomic groups within the molecule.

Certain cell molecules, under proper stimuli, rearrange their atomic grouping, polymerize and thus multiply. This multiplication may be physiological or pathological. Rapid proliferation may tend to inability to function or to react with the food supply, and, consequently, destroy the molecule or lead to the death of the cell.

In his very interesting monograph on the "Biogen Hypothesis," Verworn objects to saying that a molecule lives. He states that it is illogical. "A living thing is only that which demonstrates the phenomenon of life, — something that changes itself. A molecule of a given compound, so long as it remains unchanged, cannot be said to be living." Then, in order not to speak of living molecules, he introduces the term "biogen molecule." Surely, this is a distinction without a difference. I certainly agree with the distinguished German physiologist that a molecule of a cell, *so long as it remains unchanged*, cannot be said to be living, but the point is that living molecules do not remain unchanged. When life is latent, as it is in seeds and spores, the molecules cannot be said to be alive; but when placed under suitable conditions, then the change between atomic groups in the molecule and the external food substance begins, and life first manifests itself. However, it matters but little, I suppose, whether we speak of living molecules or designate them as "biogen molecules."

Cell Secretions. — With the conception of a living cell that I have attempted to present, it must be evident that its secretions consist of the atomic groups cast out as a result of its metabolism, and as the cells of different organs are unlike in their chemical composition, it follows that the secretions are specific. Outside the body hemoglobin breaks up, or may be broken up chemically, into hematin and a globulin. In this case the colored split product contains the iron; but the liver cells produce from hemoglobin bilirubin and an iron-containing proteid. In these two reactions the line of cleavage is quite different. The secretions of some cells enter into a more or less energetic reaction with certain extra-cellular compounds with which they come in contact. This is true of the digestive enzymes. Other secretions apparently are made for the purpose of reacting with or at least affecting the reactions of the molecules of other cells. This seems to be true of some, at least, of the so-called internal secretions, such as those of the thyroid and adrenals.

Ferments. — A most important group of cellular secretions consists of the ferments or enzymes. Without going into the history of the theories that have been advanced concerning the nature of these bodies, it seems to me that we are no longer justified in speaking of " organized and unorganized " ferments. All the ferments are cellular secretions. The work of Buchner on the ferment of the yeast plant seems to be positively convincing on this point. Oppenheimer has defined a ferment in a manner quite in accord with the latest and best experimental investigation. His definition is as follows: " A ferment is a catalytically acting substance which is produced by living cells, to which it is more or less firmly bound, whilst it is not associated with the vital processes of the cells (which produce it); ferments are capable of inaugurating chemical processes which take place spontaneously (without the presence of the ferments), but proceed more slowly. In this process the ferment itself remains unchanged. Ferment action is specific; *i. e.*, each ferment manifests its activity only on substances of certain structural and stereochemical arrangement."

I am conscious that my translation of this definition is not altogether satisfactory, and, in order to give a more exact interpretation of it, as I understand it, I offer the following explanatory statements:

1. Every ferment is a cellular product; it is a cellular secretion; a substance of definie chemical composition formed by the rearrangement of the atomic groups within the cellular molecule.

2. The action of the ferment, while it is determined by the cell which produces it, is not concerned in the " energy traffic " constantly going on between the molecules of the cell which produced it and other molecules external to this cell. With our present limited knowledge of the chemistry of the cell molecule it is impossible, in many cases at least, to distinguish between the chemical reactions resulting from cell metabolism and those due to ferments. I am inclined to the opinion that more exact knowledge will show that the autolytic changes that take place in many cells after death, and which have furnished the theme of so many papers recently, will be found not to be due to ferments at all, but to the cessation of metabolic reaction and consequent dissociation of the constituent groups of the cell molecules.

3. The function of a ferment is to hasten chemical reactions which take place, but much more slowly, without the presence of the ferment. It seems to me that a clear conception of this point gives one a key to the action of ferments in general. I have already in this paper called attention to the fact that inertia is a universal property of matter; that the direction and rate of movement in matter cannot be altered spontaneously. A ferment is a substance of cellular origin which by its presence changes the *tempo* of chemical reaction. I borrow this word " tempo " from the musician because it expresses my meaning better than any other word in my vocabulary. I am fully aware that this does not explain *why* the ferment acts by its presence, but it is worth much to have a conception of *how* it acts, provided, of course, that this conception be correct. Furthermore, it must be admitted that the *modus operandi* of ferments is still beyond our ken. Some think that certain atoms or atomic groups are detached from one of the substances, combine with the ferment, and then are passed on to the other substances. On this supposition the ferment does enter into the reaction, but is constantly regenerated. Others hold that the ferment combines with the fermentable substance, making its molecule so labile that it falls to pieces and that in the dissociation the ferment is again set free. There are weighty objections to either of these theories, but time will not permit me to state them in this paper, which on this point at least, is intended to be suggestive rather than exhaustive.

Part II. — The Bacterial Cell.

Preparation of Bacterial Cell Substance. — Bacteria of various species, both pathogenic and nonpathogenic, have been grown on the tanks. When the growth has reached its maximum, the time required for this varying with the species and the temperature, the growth is detached from the subjacent agar with sterilized bent glass rods and drawn into sterilized flasks with the aid of a water pump. The *cellular* substance is then washed with dilute, and later with stronger, alcohol. After thorough extraction with this agent it is placed in Soxhlets and thoroughly extracted with ether; next it is rubbed up first in porcelain, then in agate, mortars and passed through fine meshed sieves. This treatment yields fine, impalpable powders, the color of which varies with the germ, but is generally white because the bacterial pigments are soluble in alcohol.[1] These powders, when examined microscopically, show the cells, broken more or less, generally but little, by the rubbing to which they have been subjected. They still take the stains to which the original cultures respond with some variations with certain species.

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[1] A preliminary report was made on certain bacterial pigments by my student, Detwiler, in 1902. (Transactions of the Association of American Physicians.)

In this way we have obtained the cellular substance of the following micro-organisms: b. prodigiosus, b. violaceus, s. lutea, s. aurantiaca, b. coli communis, b. typhosus, b. pyocyaneus, b. anthracis, b. tuberculosis, b. diphtheriæ and m. pneumoniæ.

The Toxicity of Bacterial Cell Substance. — The cell substance obtained from each of the above-mentioned micro-organisms has been found to be toxic and its toxicity has been studied and reported upon by my students, Detwiler, Wheeler, Leach, Gelston, Marshall, J. W. Vaughan and V. C. Vaughan, Jr. It is interesting to note that when injected intraperitoneally in animals, the cell substance of the b. prodigiosus is more potent than that of any of the pathogenic bacteria, being more than fifty times as active as the cell substance of b. anthracis; and even the lemon sarcine, the least toxic of the non-pathogenic organisms examined, surpasses the anthrax bacillus in the potency of its intracellular poison. This shows, as I have elsewhere stated, that the prodigiosus is non-pathogenic to the higher animals, not from its inability to elaborate a poison, but because it cannot grow and multiply in the animal body; while on the other hand, the anthrax bacillus is highly infectious to some of the higher animals, not from the intensity of the poison which it elaborates, but rather from the fact that in these animals this bacterium finds the conditions favorable for its growth and multiplication. In a more general way this statement may be made as follows: a non-pathogenic bacterium may be capable of elaborating a highly active poison in artificial cultures or from dead material, but its chemism does not enable it to split up and feed upon the constituent tissues of the living animal.

The more finely bacterial cell substance is divided the more potent is it in its action. This was shown conclusively by the studies of Marshall and Gelston and is, in my opinion, due to the more ready solubility of the finely divided powders in the fluids of the body; the greater the relative surface of the germ surface exposed to the action of both the formed and the soluble constituents of the animal tissue, the more speedily is the poison set free and the more certain is death.

It may be interesting to give somewhat more in detail a statement of the amounts of cellular substance obtained from different bacteria found necessary to produce fatal results when injected intraperitoneally in guinea pigs. These amounts vary with the degree to which foreign matter is removed from the cell substance, the fineness to which the powder has been reduced and the length of time and the conditions under which the material has been kept. When frequently exposed to air and light the cellular substance decreases in toxicity, at times quite appreciably and suddenly. This I believe to be due to a hydration of the toxic group of the cell molecule and its consequent conversion into an inert or, at least, a less poisonous body. It is highly probable that this occurs to a greater or less extent in cultures in which individual organisms must die from time to time and whose cells probably undergo autolytic changes. The following figures gives the average fatal amounts of the freshly prepared, finely dried cellular substance of some of the bacteria with which we have worked:

Table 1.— The toxicity of the finely powdered cellular substance when injected intraperitoneally in guinea pigs.

Name of Organism.	Proportion of cell substance to body weight.
Bacillus anthracis,	1:1700
Sarcina lutea,	1:2050
Micrococcus pneumoniæ,	1:10000
Sarcina aurantiaca,	1:25500
Bacillus violaceus,	1:26500
Bacillus diphtheriæ,	1:33000
Bacillus typhosus,	1:40000
Bacillus pyocyaneus,	1:50000
Bacillus coli,	1:75000
Bacillus prodigiosus,	1:90000

When suspended in water bacterial cell substance may be boiled without destroying its activity. Marshall and Gelston found that heating the cell substance of b. coli communis to 134° for fifteen minutes did not appreciably lessen its toxicity, and Cooley and I heated the same substance in a sealed tube to 164° without rendering it inert. In a paper before the Association of American Physicians in 1901, I made the following statements concerning the toxicity of the colon cell:

1. The toxin is contained within the cell, from which it does not, at least under ordinary conditions, diffuse into the culture medium.
2. The toxin is not extracted from the cell by alcohol or ether.
3. Very dilute alkalies do not extract the toxin from the unbroken cells.
4. The unbroken germs may be heated to a high temperature with water without destruction of their toxin.
5. Heating the cell substance for an hour at the temperature of the water bath with water containing from 1% to 5% hydrochloric acid breaks up the cell content and lessens, but does not destroy, the toxicity of the cell content. Prolonged heating may render the toxin inert.

The Chemistry of the Bacterial Cell. — With the method employed and previously described, everything soluble in water, in dilute salt solution, in alcohol and in ether is removed from the cell substance. A discussion of the extractives obtained by the above-mentioned solvents must be postponed and will, I hope, be presented to the profession at some future time. These extractives contain inorganic salts, fats, wax, traces of carbohydrates and several proteid bodies. These substances belong, in part, to the culture medium, certain constituents of which become more or less intimately adherent to the cells without being assimilated by them; others consist of split products formed by the action of the living cells upon the constituents of the culture medium; others still are secretions of the living cell, representing atomic groups dropped from the living molecule in the process of metabolism and in the traffic in energy constantly carried on between the living, growing and multiplying cell and the outside matter which constitutes its pabulum; and finally, there are substances that result from the autolysis of the dead cells and some of these are identical with the bodies obtained by splitting up the cell molecules by chemical means and which will be described later. With some species of bacteria the important bodies that result from chemically breaking up the cell molecule can be best obtained by permitting the process of dissociation, which occurs sooner or later in all cells after death, to proceed until the greater part of the cell substance passes into the soluble form. When this happens the separation of the toxic from the non-toxic groups becomes easy of execution. There is much valuable information to be obtained by the study of these extractives, but I have not done enough with them to enable me to make many positive statements at present. Moreover, it is the purpose of this paper to give the results of the studies of my students and myself on the cell molecule or that portion of the cell that remains after everything that can be washed out with physical solvents has been removed, and when I speak of the cell as being in its essential part a chemical compound of definite composition and structure it must be held in mind that I refer to that part of the cell that remains after the extractives have been removed (Except, of course, when autolysis has taken place). I am anxious that all should clearly understand and fully comprehend this point.

The essential part of the cell, that which remains after the removal of the extractives, can be split up by chemical agents and these split products will now be discussed.

The Toxic Group of the Bacterial Cell Molecule. When bacterial cell substance, freed from extractives and prepared after the method already given, is heated in a flask with a reflux condenser with from 15 to 25 times its height of a 2% solution of sodium hydroxide in absolute alcohol, the cell molecule is split into toxic and non-toxic groups. The poisonous portion is now in solution in the alcohol and in case of b. coli and b. typhosus it constitutes about one third by weight of the cell substance. For the complete solution of the poisonous group three extractions at 78° for one hour each have been found to be sufficient. It is essential that the alcohol used in the extraction should be absolute; if it contains water, hydration proceeds too far, much of the toxic body is destroyed and it will be found on removal of the alcohol that a sticky, gummy mass, which it is quite impossible to dry, remains. The alcoholic solution of the toxic part is neutralized with hydrochloric acid, avoiding an excess, and the precipitated sodium chloride removed by filtration. The alcoholic filtrate is evaporated *in vacuo* below 40°, the residue redissolved in absolute alcohol, and this may be repeated several times. When the sodium chloride has been removed the toxic part of the germ substance is obtained in a brownish mass which may be ground into a fine powder and weighed.

By the above-mentioned treatment the cellular substance is broken into two portions, one of which is soluble in absolute alcohol and is poisonous, while the other is non-soluble in alcohol and non-poisonous. The dead cellular substance I have designated as the "crude bacterial poison," while the part of this rendered soluble in alcohol by treatment with an alcoholic solution of alkali I have called the "crude soluble poison."

The toxic part of the bacterial cell is soluble in water, ethyl and methyl alcohol, and insoluble in ether, chloroform, benzine and petroleum ether. It is more readily and freely soluble in absolute alcohol than in water, which is unusual in a proteid body. When a solution of it in absolute alcohol is evaporated *in vacuo* it forms a brownish hydroscopic powder which dissolves in water forming an opalescent, acid solution. The opalescence may be largely or altogether removed by filtration through hard paper. When neutralized with sodium bicarbonate, a brownish, non-toxic substance is precipitated and may be removed by filtration.

The crude soluble toxin in aqueous solution gives all the proteid color reactions with the exception of that of Molisch. It gives the Millon test beautifully and in very dilute solution. It does not reduce Fehling's solution, either directly or after boiling with dilute mineral acid. It contains sulphur, but not that sulphur group that is split off from most proteids on boiling with caustic alkali. Aqueous solutions are not coagulated by heat, but a precipitate is produced on the addition of mineral acid. The heavy metals, as mercury and copper, produce voluminous precipitates. Saturation of an aqueous solution with ammonium sulphate throws down a sticky resinous portion and when this is removed by filtration, both the precipitate and the filtrate give the proteid reactions. Platinum chloride produces a precipitate in both alcoholic and aqueous solutions of the "crude, soluble toxin" and the filtrate, after removal of the platinum, has but little or no poisonous action; but the platinum precipitate, which contains the whole, or the greater part, of the poison refuses to dissolve in any of the agents which we have tried and, consequently, we have been able to reach no satisfactory method of purifying the poison. Separation into two portions by saturation with ammonium sulphate is not sharp and distinct; sometimes the filtrate is more, again less poisonous than the precipitate, although the weight of evidence is in favor of the precipitation of the poisonous portion by ammonium sulphate added to saturation. Undoubtedly, there are conditions influencing this separation which up to the present time have escaped our knowledge.

As to how to classify this poisonous bacterial substance we must admit that we are still very much in the dark. The fact that the "crude soluble toxin" gives all the proteid color reactions with the exception of that of Molisch leads us to say that it is a proteid body, while against this view stands its ready solubility in absolute alcohol. The precipitation of a portion of the "crude soluble toxin" by saturation with ammonium sulphate while both precipitate and filtrate, after removal of the salt, give all the proteid color reactions, with the exception of that of Molisch, leads us to say, for the present and until continued work increases our knowledge, that the poisonous group in the bacterial cell molecule consists of a bacterial albumose and that this differs from the better known vegetable and animal albumoses in its ready solubility in absolute alcohol. It seems probable that the albumose is the poisonous body and that it is easily converted into a pepton-like body which is either inert or has but little poisonous effect upon animals. It may be that the real poison is mixed with this proteid body, while chemically it is no part of it, but we have tried all known methods of extracting a poison from this proteid and having failed in all these attempts we must for the present assume that the proteid itself is the poison. Indeed, we started upon this research and adopted the method that we have followed on the theory that the poison in the bacterial cell is neurin and that it loses its poisonous properties by easy conversion into cholin. We were led to suspect this on account of the similarity between the poisonous action of neurin and that of the active body in the bacterial cell. If this could be proven it would afford a ready and rational explanation of the injurious effect of the bacterial cell on the animal body; but we have labored earnestly now for some years to find neurin in the bacterial cell with constantly negative results. We do not say that a neurin group does not exist in the bacterial cell; indeed we still believe that the poisonous agent in the bacterial cell is physiologically at least, a neurin, but we are compelled to admit that we have not been able to prove the presence of either neurin or cholin chemically.

The "crude soluble toxin" is an acid body with sufficient acidity to slowly decompose the alkaline bicarbonates forming salts which act like the free acid, but more tardily.

(*To be continued.*)

Original Articles.

THE CARE OF FAR-ADVANCED CASES OF PULMONARY TUBERCULOSIS.*

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Modern opinion regarding the rational management of consumption relates to the consideration of a suitable régime, embracing rest, out-door air and superalimentation. If these principles are worthy of detailed application for incipient pulmonary invalids, it must follow that still more completely ought they to be elaborated with reference to far-advanced cases. The object of this paper is to call attention to the manner and extent of their application to a class of consumptives demanding upon the merits of their condition, the fullest conception of an intelligent system of management. Among invalids of this character the most rigid and painstaking observance of basic principles of treatment, subject only to modification according to peculiar individual needs, offers the sole reasonable hope of a successful issue.

It is unnecessary at this time to discuss the accepted favorable influence of climate, although an important aid even to advanced cases. It is also inexpedient to consider the alleged advantage of residence within a closed sanatorium, but the utility of complete supervisory control either within or without an institution is thoroughly recognized.

With the exception of fever, which constitutes one of the features of special prognostic and therapeutic importance, it is not proposed to discuss the various means of combating special symptoms, as these are too well understood to justify repetition.

I wish to call attention in the order named: (1) To the attitude of the physician in assuming the responsible direction of the patient. (2) To the necessity for energy, infinite patience and regard for the smallest detail in the protracted period of observation. (3) Fresh air and rest combined. (4) Principles of diet. (5) The management of fever.

The first great requisite for successful treatment consists not only in the careful preliminary investigation of all the phases of the case, physical, symptomatic and historical, but also in the diligent study of all the factors pertaining to the patient himself, temperamental, financial, domestic and social. Only through such means may the clinician hope to arrive at definitely correct conclusions as to the manner of applying the principles of treatment to the best possible advantage. With a clear comprehension of the many problems incident to the peculiar requirements of the patient, he should venture no expression of opinion before securing their accurate solution.

Following a review of the clinical history and exhaustive examination of the chest, it is my practice to make a brief report of the condition and offer such encouragement as is consistent with the facts and seems advisable from first impressions, declining, however, to grant a detailed advisory statement until after the urine and sputum have been examined. This permits not only precise clinical information regarding some important phases of the case, but what is even more important, affords not less than twenty-four hours' delay, during which time its many aspects may be reviewed. I have found it desirable in the majority of instances to acquaint the patient and family with some intelligent conception of the nature of the disease and the manner in which it is hoped to secure arrest. It is usually well to make clear that there is no special method of treatment, that the position of the medical attendant is one of counsellor to guard against blunders and indiscretions, and that strict compliance with instructions is a *sine qua non* to success. Thus with a more or less comprehensive understanding of the rationale of the methods to be advised, it is easy to conceive how much more ready is the acceptance of an enforced régime, how much greater confidence is established between patient and physician, and to what a greater extent there may exist a mutual sympathetic coöperation. Having thus established early relations of confidence and reciprocal effort, the physician is usually permitted with less opposition to elaborate ideas of treatment, which might otherwise have been nonacceptable to patient and friends.

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The second essential of treatment consists in a diligent, painstaking regard for detail, which must be inspired solely by a genuine devotion to the well-being of the patient. It is comparatively simple to prescribe rest, fresh air and plenty of good food, but the obligation of the physician is not discharged until he personally provides such accommodations and surroundings as will insure the proper continuous execution of his directions. The vital point ever to be borne in mind is the thought that it is not the disease itself, but rather the individual offering the greater field for study and attention. The management of consumptives is radically different from that of any other class of human beings, in view of the fact that by virtue of their illness there may be, with some, more or less accentuation of inherent wayward characteristics, with others a certain perversion of natural proclivities, and possibly acquired degenerative tendencies. An attempt was made by a writer some years ago to demonstrate that pulmonary invalids, through the very nature of their disease, became perverted nervously, inculcating habits of self indulgence, loss of self-control or moral restraint, developing an inability to appreciate the proportionate fitness of things, and exhibiting the stigmata of varying degrees of degeneration. While protesting that such broad generalizations are both untrue and unfair, it must be admitted, nevertheless, that as we are all to some extent, creatures of our environment, consumptives are influenced to a degree by their radically changed conditions, surroundings and prospects. The knowledge of their physical state, the separation from home, the indolent life, the absence of high ideals, the lack of healthful occupation of the mind, the association with others similarly afflicted, and, in some instances, the interminable duration of the illness, inevitably modifies character. From my own experience I can assert, however, that a considerable number of pulmonary invalids as a direct result of the suffering, both mental and physical, are led to a life of broader charity, greater sympathy and almost angelic disposition. It remains true that consumptives constitute a class decidedly unique and peculiar to themselves, demanding of the medical attendant the exercise of the greatest tact, judgment and skill that is required in all the domain of medicine.

It unfortunately happens in many cases that it is not the patient alone whose temperamental peculiarities demand thoughtful consideration, but to a great extent the accompanying members of the family as well. While many patients have literally committed suicide through their own folly and indiscretions, others are sacrificed through the perversity, ignorance and delusions of their immediate relatives. Petting, sympathy, condolence or indulgence on the part of others, constitutes a most serious hindrance to the accomplishment of best results. Segregation of the patient in the majority of instances is attended with greater success than could otherwise be attained. I have several times insisted upon the separation of little children from their parents for over two years at a time, under the care of trained nurses especially adapted to the work. While this may seem difficult of execution, I have found that if properly presented the family are usually quick to appreciate the wisdom of such advice and govern themselves accordingly.

At no age are patients more domineering, wilful and difficult of management than in the neighborhood of eighteen, even if confined to the bed. I have found the care of such patients to be made conspicuously more simple and effective if removed from their parents. The separation of husband and wife is often expedient by reason of considerations which are quickly recognized. In such instances the physician must possess the courage of his convictions sufficient to insist upon the removal of these influences through such isolation as may be reasonable and practicable.

The task of enforcing a proper régime varies within wide limits. It is comparatively easy to secure the active coöperation of patients who are intelligent, phlegmatic in temperament and amenable to advice. Such a class is undoubtedly limited in the experience of those who are brought in contact with all stages and conditions of pulmonary tuberculosis. When to the care of the pulmonary invalid there are added the difficulties arising from the peculiarities and perversions of judgment of members of the family, it is easy to appreciate that successful management necessitates such a degree of patience, determination and attention to detail as to almost constitute a form of genius. The extent to which this endowment is possessed by the medical attendant is responsible in large measure for the success which may be expected to attend his efforts.

Rest and fresh air jointly constitute a cardinal principle of treatment applicable to advanced tuberculosis. While open air is indispensable to all stages and conditions of the disease, in desperate cases complete rest is of equal importance. Either one with the sacrifice of the other is of no value for such a class of invalids. No matter how many the hours out of doors, if at the expense of fatigue, the day must be summed up as a failure. Exercise is absolutely forbidden as it almost invariably increases temperature, produces exhaustion, very seriously impairs digestion and sometimes excites hemorrhage. The nervous force which is dissipated by even slight exercise or excitement, diminishes by just so much the energy required for the proper performance of digestion. With this function impaired and with elevated temperature, the patient inevitably loses not only valuable time in his effort to secure arrest, but in many instances a large measure of opportunity as well.

By absolute rest I refer to the maintenance of the recumbent position in bed during the twenty-four hours of the day. Rubbing, gentle massage or resistance exercises may be employed occasionally to promote capillary dilatation, equalize the circulation and develop the heart. Invalids may obtain fresh air at all hours, and at the same time remain completely at rest only through special provision for porch accommodations. It is hard to conceive how the erarium, or other device for putting the head of the patient at an open window, can be productive of the best results. While such ingenious arrangements are assuredly better than nothing their disadvantage consists in the limited amount of fresh air capable of attainment, the obstacles in the way of special care and nursing on account of the hood arrangement, and the psychic influence which can hardly be regarded as encouraging or inspiring.

When possible to prevent I have never permitted my patients to occupy tents on account of the difficulty in securing proper ventilation with the unavoidable inconvenience and privation. No matter how modern the effort toward sufficient ventilation, they are usually cold in winter if not overheated at the expense of fresh air, and extremely oppressive in the summer unless open to direct drafts. Nothing has become more impressed upon me than the necessity of rendering the pulmonary invalid comfortable physically, and of inspiring a cheerful mental attitude through the influence of a pleasant environment. If primitive tent accommodations are good for a class of people unable to secure anything else, the commodious specially arranged porch opening directly from the sleeping room upon the second floor is infinitely better for others. So high a value do I place upon this arrangement that I frequently insist upon the construction under my own personal supervision of such porches even by patients who take houses under lease. The porch should be covered by permanent roof, sheathed up from the bottom a distance of three feet with a wipe sill, and enclosed with wire screening.

It has been advised by some that patients remain directly exposed to the rays of the sun as many hours as possible regardless of the season. To this principle I am heartily opposed, as it may happen a porch comfortable in the morning becomes almost unbearable in the afternoon, and *vice versa*. My rule is to permit the patient to remain in the direct rays of the sun only during such times as he experiences actual enjoyment from so doing, and to remove him whenever discomfort supervenes. It is not the varying degrees of heat from the sun's rays that produce beneficial results, but rather the pure fresh air in or out of the sun according to the state of the patient and conditions of weather.

I am not in sympathy with the application of the theory of outdoor sleeping at night regardless of other considerations. This practice when advised with proper discrimination is capable of producing inestimable benefit, but its routine adoption is certainly followed in some instances by harmful results. The principle must not be forgotten that the patient must at all times be kept perfectly comfortable as well as supplied with fresh air. In extremes of weather comfort can be secured only by lowering the canvas curtains and closing all outside apertures to such an extent as to preclude proper ventilation. In the midst of severe weather conditions, patients not only are more comfortable in a bedroom with moderate heating facilities, but at the same time are afforded much better ventilation from one or two open windows than obtained outside with all curtains tightly closed. Further, it has been my experience that certain patients have done poorly by sleeping out of doors save during the summer. The explanation is found in the varying degree of bronchial irritation co-existing with the tubercular infection. In so far as the bronchial element predominates, by just so far is the cough made more distressing and the general condition thereby less favorable through exposure to the cold air at night. During the winter months the therapeutic indication for cases of chronic bronchitis *per se* is not fresh air, but rather protection from drafts and exposure. Is it not consistent and wise to offer bronchitic patients suffering from complicating tubercular processes the same judicious consideration? While in many cases there is no direct relation between the extent or degree of activity of the tuberculosis alone and the amount of bronchial irritation, the fact remains, that severe bronchial disturbance reacts decidedly to the disadvantage of the invalid. This is especially exhibited in the fatigue incident to the cough, and in the reflex vomiting after the ingestion of food which materially interferes with nutrition.

In view of the fact that nutrition is to a great extent the measure of nature's constructive efforts toward arrest, it is easy to appreciate the vast importance of diet. No matter how rigid the régime in other respects, nor to what degree the strength and energy of the invalid is conserved by judicious rest, nutrition remains largely dependent upon the ingestion of food sufficient to supply the natural demands and aid directly in the reparative process. The first great proposition, then, is that the patient should take an extraordinary amount of food daily, in fact, all that it is possible to administer within the limits of digestion and assimilation. The word "administer" is used advisedly. It is not what the patient *desires* to satisfy the cravings of hunger, it is not what he is willing to take, or even what he feels personally he is able to eat, but it is rather all that the physician and nurse are able to persuade him to ingest through their personal influence and direction. The system of superalimentation is subject to great variation according to the individual, efforts appropriate for one case being entirely inapplicable to another. The tastes, desires and inclinations of the patient must be considered, the variety and character of food, the manner of cooking and the style in which it is served. Digestive disturbances must be recognized and obviated, not only by medicinal measures, but also by the quantity and nature of the food and the time of its administration.

Aside from these well recognized principles, the degree of success attained in the effort toward heroic feeling depends largely upon the personal influence of the nurse. The physician may emphasize ever so clearly the necessity of over feeding, and the invalid in appreciation of this may recognize full well that a large measure of the responsibility rests directly upon himself, yet it may happen from various causes he is totally unable to take unaided a proper amount of food. Depression of spirits, temporary excitement or fatigue with weakened will power, may suffice despite his higher faculties to render the meal a failure. It is here that the usefulness of the trained nurse is very apparent. Through the various means at her command, according to her tactful judgment and the exigencies of the case, she is able to exercise an influence which in my experience very often turns failure into success. Her power may consist in quiet persuasion, exhortation or command, but the result is the same in either instance. My nurses are taught to employ all these measures when necessary, and that failure to enforce the ingestion of a satisfactory meal will not be overlooked save in the presence of fever, acute digestive disturbance, or other equally good and sufficient cause. A systematic endeavor is made to determine the limit of tolerance for each individual, who is subsequently compelled at any cost to consume the full quantity of food of which he is capable, not according to his own ideas, but as determined by judicious experiment and close clinical observation. It is astonishing to what a remarkable extent patients are able to ingest food, who at first protested their utter inability to take more than a modicum of nourishment. Persuasive appeals to such are usually of little value. Results are only obtained through authoritative command of the physician, supplemented by the ministrations of a nurse especially adapted to the work. I have in mind a young lady in far advanced phthisis, who protested strongly her repugnance and intolerance for food. Under no circumstances, she declared, could she swallow a raw egg or submit to beef juice and cream. Through the firm directing influence of her nurse she has taken for many months, not only three large meals daily, but in addition fifteen raw eggs, eighteen ounces of beef juice and a pint and a half of cream, in addition to somatose and Russell's emulsion. Such a result would be impossible of attainment save for the personal influence of the nurse. The conclusion is logical, therefore, that the obligation of the physician to the patient is not met by the formal perfunctory statement that it is necessary to eat large quantities of food, nor still further by specifying the amount to be taken. His trust is not discharged until he places the patient in such an environment, and surrounds him with such influences as will secure compliance with detailed instructions. The attainment of successful results depends not alone upon the advice received by the patient, nor entirely upon his ready acquiescence, but rather upon the fortunate acquirement of such combined conditions as will insure the actual fulfilment of dietary directions.

It is hardly necessary to specify in detail the character of the food, which is necessarily subject to much variation in individual cases, the central thought in all being to have the patient consume as much as he can assimilate. It may be well to state briefly the considerations leading to selection of diet.

The policy of overfeeding embraces a careful consideration of the food eaten during the meal and the nourishment taken at other times. The fullest measure of success can be obtained only though a special effort toward the selection of such varied articles of food as will appeal to the appetite and cater to the tastes of patients who are notoriously whimsical. Generally speaking, pulmonary invalids are encouraged to partake of a mixed and unlimited diet with instructions to use butter and cream freely. No attempt is made to restrict the character or quantity of the food unless in accordance with special indications. In the absence of conditions clearly contraindicative of heroic feeding, the patient is urged to ingest progressively increasing quantities, the urine, however, being examined at short intervals in each case. Sweets, starches and fats including pastry, are denied to patients with diarrheal disturbance or with other evidences of gastrointestinal indigestion. These are also interdicted for those with pronounced uric acid diathesis, the nitrogenous foods having been found productive of less harmful results than the carbo-hydrates. Digestive disturbances are treated not so much by diminishing the total daily quantity of food, but rather by its judicious selection and time of administration.

As far as extra nourishment is concerned it is desirable to introduce as much concentrated food as is practicable with the least resulting impairment of appetite and disturbance of digestion. My practice is to administer from two to four ounces of beef juice immediately upon awakening in the morning. This enables the patient to better undergo the bath and does not interfere with the appetite for breakfast which is served one hour later. The beef juice is repeated in the middle of the forenoon, afternoon and evening, and constitutes the only nourishment permitted between meals, as it is of small bulk and has not been found to impair the appetite for the ensuing luncheon or dinner. It has been my almost invariable experience that if considerable amounts of food in the shape of raw eggs and cream are taken between meals the subsequent appetite is to a great extent destroyed. Thus it may result that the patient is able to take in the twenty-four hours actually less food than if there had been no attempt at extra nourishment. This unfortunate result rarely occurs if the eggs and cream are taken *immediately following* the meal. It must be made clear that such extra nourishment should not be taken as a substitute for even a portion of the regular food, but should be entirely supplementary to it.

After the invalid has eaten all that he feels he can possibly engorge, it is surprising how simple is the ingestion of raw eggs and cream, and with what beneficent results, provided they are taken in the proper manner. The eggs should be uncooked and swallowed whole with a little sherry, lemon juice or ice water. In this manner they are introduced into the stomach without any special taste and do not become repugnant to the patient already satiated by a generous meal. Difficult as the feat of taking raw eggs may be considered at first by the invalid, it speedily becomes more or less of a joke, provided the eggs are fresh. Under no circumstances are the eggs to be beaten up or mixed with the cream or milk. If incorporated into a palatable beverage they eventually become distasteful and nauseating to the individual. If without special flavor and swallowed quickly they may be continued almost indefinitely. The average number of raw eggs consumed by my patients daily is one dozen, although many have taken from fifteen to twenty. Following the eggs a half a glass of cream is immediately taken. To some somatose in teaspoonful doses is given three times a day either in soup or the beef juice. Emulsions of easily digestible fats are often taken half an hour after each meal. In most desperate cases it is my practice to take advantage of every available opportunity for the administration of nutritive enemata consisting of beef juice, a beaten egg and peptonized milk.

Alcohol, although admittedly a food, is permitted but sparingly, and then only in the presence of clear therapeutic indications. It is rarely given as a cardiac or general stimulant save in people of advanced age. Used indiscriminately it adds to arterial excitement, increases the tendency to hemorrhage, impairs appetite and promotes restlessness and insomnia. The detection of its odor upon the breath, or the flushing of the face, may be regarded as direct indications of its harmful effect even in the absence of stronger evidence. When taken in sufficient quantity to destroy the appetite and retard digestion, the amount of food supplied by the alcohol is far less than the nutritive value of the food which would be ordinarily taken. To the diminished food supply occasioned by the alcohol in inordinate amounts is added the distinctly injurious effect of over stimulation. Its intelligent administration, however, in small amounts and to carefully selected cases, may be attended with rare benefit. I sometimes permit a mild dry cocktail to be taken five or ten minutes before the midday or evening meal by those with fickle appetite. This should not be continued for any great length of time. If taken cold, only for such periods as advised by the physician, it may add to the consumption of food. A light ale, stout, half and half taken with the meals is of some value as an appetizer and aid to nutrition. Taken during the evening it frequently is found to promote sleep. Occasionally a sherry, Rhine wine or moselle may be taken with dinner. This constitutes the only manner of administration of alcohol which I am in the habit of permitting save in the presence of acute conditions demanding active stimulation.

Fever constitutes more substantial evidence upon which to base provisional conclusions regarding ultimate success than any other clinical feature in the course of pulmonary tuberculosis. It usually exists as an important symptom of sepsis, and represents, if persistent, an insuperable obstacle to recovery. There is no definite relation between the physical condition and the degree of septic absorption. There may exist most extensive areas of active tubercular infection without any appreciable elevation of temperature, or there may be present severe constitutional disturbance accompanying a slight inactive tuberculous process. The prime obligation of the medical attendant relates as far as possible to remedial rather than to palliative measures. No practice can be more superficial than the effort to lower temperature temporarily through medicinal or hydrotherapeutic agencies, without immediate recourse to the employment of other means tending to prevent its recurrence. Night sweats, diarrhea, cough and even hemorrhages may be treated as they arise through methods found to be productive of temporary relief, but the fever of sepsis demands far more than the employment of measures to increase the comfort of the patient. If the policy of *laissez faire* is instituted, the future contains nothing for the patient but speedy disaster. If active steps are taken to combat temperature the condition of the patient is in no wise made worse even in the event of failure, and in certain conspicuous cases practical results will be obtained far beyond the limits of present laboratory knowledge and incapable as yet of bacteriological explanation. This position is justified by the facts of actual experience.

The measures which I am in the habit of employing are (1) the most complete interpretation of the rest treatment and (2) the use of the anti-streptococcic serum.

Rest is the preliminary essential factor in the diminution of fever which is often remarkable in patients kept rigidly in bed at all times. With a beginning reduction of temperature, there is a corresponding improvement of appetite, digestion and assimilation, with resulting increased nutrition and greater power of resistance. While in some cases the reduction of fever is immediate upon the adoption of the recumbent position, others exhibit at first but slight diminution, months elapsing before the temperature recedes to the neighborhood of 100. While the prolonged indefinite period of rest constitutes a trial to one's patience and courage, the invalid is constantly laying the foundation for an ultimate and possibly complete recession to normal.

In a paper to be read next week before The National Association for the Study and Prevention of Tuberculosis, a series of ten cases briefly will be reported, illustrative of the possibilities of success attending this procedure. Any special deviation from the strict interpretation of the principles of the rest treatment, even for a short time, is inevitably destined to result in failure. This method should be adopted as a preliminary measure in all cases presenting the septic fever of advanced tuberculosis, save in the presence of such special indications as demand prompt recourse to more radical procedures.

Whenever from the antecedent history of the case it is apparent that the continuance of the rest treatment offers no reasonable assurance of success, refusal to resort to the use of serum even if believed of doubtful utility, is nevertheless, a culpable negligence on the part of the physician.

While the rationale of its administration may be incapable of precise bacteriological demonstration, a justification for its employment is found in the occasional remarkable exhibition of clinical improvement. No medical growth can take place without recourse to investigation and experiment. Development along clinical lines is sometimes equally valuable as the results of laboratory research. It is known that in the sepsis of streptococci, which constitutes the principal secondary infection of tuberculosis, the soluble toxins are not found present in the blood, but are inclosed within the micro-organism itself, constituting an endo-toxin. Hence a neutralization of the toxins as in tetanus or diphtheria is impossible. It has been shown recently by Bordet, V. Luigelsheim and Denyer that in animals following the administration of an anti-streptococcic serum, a previously existing negative chemio-taxis is converted into a positive one, the repellant action between the micro-organism and the leucocytes being changed into an attraction, affording added opportunity for resulting destruction of the streptococci by the englobing and digesting of the micro-organisms. Thus far the results obtained in animal experimentation have not been found to hold true in man. This fact, however, should not be construed at present as being sufficient to preclude the administration of the serum for the clinical evidence of its value in a class of cases appears incontrovertible.

The results of my observation following the use of the anti-streptococcic serum were reported four years ago. A considerable experience since then has emphasized my conviction as to its utility in desperate cases failing to exhibit improvement through other means. While thoroughly cognizant of some of the disadvantages attending its employment, I have thus far seen no valid reason to discountenance its administration in properly selected cases.

My conclusions may be briefly summarized as follows:

1. About one case out of every four or five may be reasonably expected to exhibit a pronounced diminution of temperature by the end of a week or ten days.
2. The remaining cases do not show any bad results from its employment, other than due to the occasional intolerance of the system for the serum of a horse.
3. This so-called reaction which is independent of the specific nature of the remedy, but common to all other serum preparations, bears no relation to the ultimate results obtained.
4. Some cases show marked improvement in spite of temporary discomfort in the way of chills, fever, urticaria and painful swelling with stiffness of the joints, while others exhibit no improvement although there is entire absence of constitutional disturbance.
5. Reaction may take place within twelve hours after the use of the serum or it may be delayed for six weeks.
6. Occasionally the improvement is delayed indefinitely until the occurrence of the reaction, following which there may be complete and enduring subsidence of the fever.
7. As a result of the serum the temperature either may subside to normal or may be reduced several degrees remaining, however, somewhat elevated.
8. I have not been in favor of its continued subcutaneous employment, and have given, as a rule, not over four or five doses at intervals of one or two days and awaited results.
9. During the past nine months I have practiced the tentative administration of the remedy by the rectum for ten or twelve doses before resorting to its hypodermatic use, in order to avoid the discomfort which sometimes follows its injection into the tissues.
10. I have seen unquestionably good results attend its use even when streptococci were not found in the sputum, and believe that even under such conditions the clinical evidences of a persisting sepsis may sometimes afford from a humanitarian standpoint, a warrantable basis for its use.

SUB-PECTORAL ABSCESS.*

BY JOHN H. MUSSER, M.D., PHILADELPHIA, PA

I AM about to present a subject which may seem an unimportant one to you, but it has been the cause in my experience of the loss of life in two instances, and in the cases that are scattered throughout literature — the monographs that have been issued on the subject — a large number of deaths are recorded. I am unable to give the exact mortality. Out of the twenty-three cases that I collected in 1900 thirteen died of this apparently simple condition.[1] Since then, some fifteen more cases have been recorded with a correspondingly high mortality.

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*Read before the Medical Society of Virginia at the Annual Meeting, Norfolk, 1905.

Sub-pectoral abscess is seen in both the acute and chronic forms. I shall only speak about the acute form, saying that the chronic variety, or the so-called cold abscess is usually due to tuberculosis or in rare instances to actinomycosis.

The acute forms are obscure in their origin, and for this reason, perhaps, generally overlooked. Trauma may be considered one of the causes, exposure directly to cold another; in other instances, infection in some portion of the body or through the blood and in rare instances, the abscess begins from pulmonary infections. To state that trauma, cold, exposure and infection without an infection atrium are causes, is most unsatisfactory. It is quite certain that in a number of cases — in two of my own, you could not find any mode of entrance of the infective agent. The infection may have taken place through the lymphatics beneath the pleura. The lymphatics became infected perhaps from the lungs. One of the earliest recorded cases, that of Dr. Harrison Allen in 1864, was of this type.

The symptoms of the acute form are local and general. The characteristic of sub-pectoral abscess is the small amount of local pain symptoms and the great intensity and virulence of the general phenomena. So marked are these, that the local symptoms are frequently overlooked, and one flounders about in a sea of doubt, not knowing the source of the general phenomena. Perhaps before the initial chill, there is a little pain and tenderness in the region; and after the chill and during the fever, the patient may speak of being unable to lift the arm on that side or there may be considerable myalgia. If an investigation is made for the cause of the febrile phenomena, it may be pretty largely negative. In the recent case which I saw, we could elicit a little tenderness on pressure over the pectoral muscle, and the patient, a physician, admitted to soreness for four days which he thought due to the general toxemia. We could note that there was a little fullness of that region. This fullness soon became a swelling. Such are the local symptoms for some time, but sooner or later swelling develops, and a large mass is felt underneath the pectoral muscle. Then it may occur that the abscess points in the direction of the axilla, and we find a swelling and fluctuation perhaps a point of redness. The reason for these small localized phenomena is the character of the fascia which binds down the inflammatory product. The reason for the severe general phenomena is in all probability the richness of the lymphatic supply underneath the pectoral muscle. I need not enter into details as to the great lymphatic wealth underneath the pectoral muscle, and as to where they are located in this region because those of you who have seen mammary carcinoma know full well how these tubes and channels traverse this whole region.

The general symptoms antedating or corresponding in time with the local symptoms, are those of intense infection — chills, high fever out of all proportion to the local conditions — a high leucocytosis, the diazo reaction and if the symptoms continue three or four days or a week, there will be the usual infectious albuminuria.

The general symptoms correspond to those which we usually see in ulcerative endocarditis, or osteo-myelitis and like infections, or with those which we see in cases of miliary tuberculosis; and indeed we are often put to our wits' end to decide which infection prevails. The leucocytosis counts against tuberculosis. We may, however, have to decide almost entirely by exclusion, and even then it is not until very late that the source of the infection is found. Exclusion of an infectious process in all the other organs and structures of the body with a fair hint that there is some local disorder about the chest muscle may put us on our guard and with watchfulness we may find the location of the infection. In the case previously referred to the toxemia was so great that the secondary infectious nephritis was thought to be primary and the toxic nervous symptoms to be uremic.

So much am I impressed with the importance of searching this region that I am prepared to advise surgical exploration in all suspected cases. I have seen a case (above noted) within the last six months which was practically what I have just outlined. It was the case of a man having chills and sweats. I was sure there was a little fullness in the left pectoral muscle and that there was a little induration, and notwithstanding the fact that I could not find an infection atrium, I insisted that this process was present and asked that exploration be conducted. I could not remain and the surgeons who were in charge of the case did not succeed in finding an abscess. They used exploratory needles. I doubt whether they went deep enough. The man went on from bad to worse. My friend, Dr. Deaver, was asked to see him and found that a large amount of pus was confined under the pectoral muscle. Unfortunately, the man was so septic, that although the abscess was emptied and drained, the man died. Such the history of a number of these cases, most of them supposed to be pulmonary. Such was the first case I had. I will not give the details of the case as it was published in the *American Journal of Medical Sciences* and the paper presented to the Association of American Physicians in 1900. They are sometimes thought to be empyema, and although empyema does often open in this situation its course is somewhat different. The physical signs prove the presence or absence of this condition.

There is in a certain sense a measure of inadequacy in this report. I must say there are many cases for which the cause of the infection cannot be found. The cases are most latent as far as localizing symptoms are concerned. I am permitted to once more call attention to the great importance of closely studying localized pain or even soreness in infectious cases in which no evident cause prevails. Because of the fatality and the general symptoms and because of the serious secondary lesions of other structures, I have felt it incumbent upon me to again call your attention to this simple but most serious infection.

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[1] Sub Pectoral Abscess by John H. Musser, M.D., Trans. Asso. Am. Physicians, 1900. A Case of Sub-Pectoral Abscess, by G. G. Davis, M.D., Am. Jour. Med. Sciences, 1904.

FRACTURE OF THE FIFTH METATARSAL BONE BY INVERSION.

BY F. J. COTTON, M.D., BOSTON.

Surgery has to-day reached a point where a certain precision in diagnosis may fairly be expected irrespective of any serious results from error in such diagnosis.

It may be admitted that the consequence of overlooking the fracture here under consideration is not very grave; probably permanent disability never follows it, but it is better to get things right than wrong and there seems reason to suppose that these cases are often misinterpreted. They seem to be relatively common. The writer[1] has recognized six cases in the past three years and may well have failed to note others. Until 1901, no one recognized them at all. They seem to have been lumped as sprains (all undiagnosed fractures are sprains) until[2] Robert Jones described his cases. None have been reported since, apparently, save the case above noted, but it is highly improbable that Jones's cases and those here given represent exceptional groups; probably the lesion is common. There is a curious uniformity in these cases when one gets to know and look for them. The history of trauma, as given by the patients is not suggestive of violence enough to produce a fracture. The patient has, either through a sudden motion or in a misstep, trodden on the outer side of the foot. There has been pain and some lameness. Disability is never extreme, usually very moderate indeed. The complaint is that the outer side of the foot is "lame," and that the patient cannot rise on the toes.

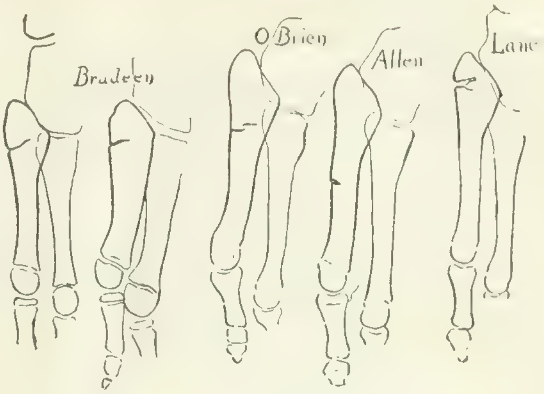
On examination we find a little swelling, with little or no ecchymosis, on the outer edge of the foot. There is pain and tenderness about the base of the fifth metatarsal. Crepitus or mobility are not usually found.

These points seem to be diagnostic:

(*a*) The point of maximum tenderness is distinctly localized and distinctly forward of the back end of the fifth metatarsal. (*b*) There is pain on pressure inward on the *distal* end of the fifth metatarsal — pain referred not to the site of pressure, but to the *base* of the metatarsal. (*c*) Pain on *upward* pressure on the distal end of the metatarsal or on putting the weight on the foot is disproportionately slight.

If the case is seen late there will be a callus, slight in amount usually, but distinct.

Nothing is known of the exact etiology of the fracture except that it results from inward pressure on the outer edge of the foot.



Tracings from x-ray negatives: cases i, ii, iii, and v.

I. Allen. Boy of fourteen, Nov. 23, 1903, (x-ray 6871). Slipped and turned his ankle inward. Shows tenderness well forward on the fifth metatarsal. X-ray shows fracture by inversion, apparently incomplete; typical except that it lies further forward than usual.

Treatment in this, as in the later cases, consisted in the use of a plantar splint for a week, then adhesive strapping and careful use after ten days.

II. Lane. Boy of twelve, Nov. 25, 1903 (x-ray 6891). History and course similar to those of Case I. Lesion in this case through the base of the fifth metatarsal.

III. O'Brien. Oct. 3, 1904. Adult (x-ray 9826). Similar history, stepped off a curbstone and "sprained his foot." Fracture just in front of the broad base of the bone.

IV. Schneider. Nov. 1, 1905. Adult (x-ray 9993). This case was one of the usual etiology, a misstep, but did show slight mobility and crepitus. The x-ray showed a fracture slightly forward of the usual point. (The plate is not now to be found.)

V. Bradeen. December, 1905 (x-ray 10206). Boy of eleven years. Was standing on a brick. The brick rolled over and he came down on the outer side of his foot. The foot showed the usual localized tenderness. The x-ray showed a fracture, apparently incomplete, just at the front end of the broad base of the metatarsal.

After four weeks there was nothing to show save slight tenderness on pressure. There was no longer a palpable callus and no lameness.

Reports of Societies.

SECOND ANNUAL MEETING OF THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Abstract Report.

Wednesday, May 16.

Joint Meeting of the National Association for the Study and Prevention of Tuberculosis and the Association of American Physicians.

IMMUNITY IN TUBERCULOSIS.

Dr. Simon Flexner, New York, delivered this address. He said the study of immunity in tuberculosis had begun with the epoch-making researches of Robert Koch in his efforts to transmit the disease from animal to animal for this demonstration had been necessary before further steps could be taken. The first successful inoculation had been made in 1843 by Klemper, but his investigations had not been pursued and were soon forgotten. At this time the opponents of the infection theory had endeavored to prove that tuberculosis could be produced by the infection of non-tuberculous material. Conheim had brought out the method of introducing the infection into the rabbit's eye which had the advantage that the whole process could be watched and that spontaneous tuberculosis had never been known to occur in the rabbit's eye. Koch in 1882 had demonstrated the organism and secured cultures of the bacillus free from extraneous matter and was able to reproduce the disease in domestic animals. He thought that it did not detract from his work that he had failed to distinguish between the different forms of tuberculous disease in fowls, animals and man. Now several distinct kinds were recognized, classified into human, bovine and avian. The close relationship of these made the study of the disease in animals of great advantage, and the problem of the suppression of tuberculosis had to take into account the possibility of danger of infection from one to the other. Certain mammals had proven to be susceptible to inoculation with the avian bacillus, but from his personal knowledge it could be postulated that avian tubercle bacilli occurred rarely in man. It had been thought that the parrot, because of its use as a pet and its susceptibility to avian bacilli might be a menace to man. He thought all forms of human tuberculosis were caused by the mammalian or bovine bacilli. That the bovine bacillus was considered as endangering man was proven by the efforts made to protect against it. He said that to Ravanel and Smith fell the responsibility of refuting the rather broad statements of Koch as to non-communicability of the bovine bacillus to man. It had been shown that the bacilli could gain entrance through the intestinal walls and lymphatics and he thought that the limitation of the disease must depend upon our knowledge of its mode of entrance. He said that Koch still reiterates his belief that there is no danger of transmission of the disease from cattle. If the danger of infection could be limited to the sputum of other patients as a cause the problem would be less large. He thought the time was not yet ripe to ignore the possibility of infection from animals and expressed the hope that there would be no relaxation in the efforts to control tuberculosis in cattle. He called attention, however, to the fact that Kitisato in Japan had recently shown that tuberculosis prevailed there in its usual ratio when no cattle were being used as food. Dr. Flexner said that a marked reduction in the mortality from tuberculosis had been going on in various countries due to the régime of education and improvement of the condition of the poor. He detailed the most important work of investigators along the line of securing an artificial immunity. Vaccination by means of the dead bacilli and of living attenuated bacilli promised much and tuberculin as a diagnostic measure at least was of great value. The first successful efforts had been those of Dr. Trudeau in injecting animals with the avian bacilli and he explained in detail the methods pursued in this work. Dr. Flexner said that while tuberculosis claimed in death one in every seven persons the morbidity was much greater than this indicated and that autopsies indicated that 90% of persons have at some time of life been the victims of this infection. From this it was to be assumed that the human organism had a natural tendency to immunity and it was to be believed that a degree of immunity might be acquired by man. Vaccination of cattle was now being successfully practised. He called attention to the fact that Dr. Leonard Pearson, of the Phipps Institute had concluded that there was no doubt that different cultures of the human bacillus possessed different immunizing values and that it had been definitely shown that vaccination could be practised without harm to animals, though not always without danger. The question of the duration of immunity was still an open one; it had been shown to last a year, but there was no proof that it would last for an entire life and the immunity could be overcome by the injection of large quantities of active bacilli. It remained to be learned how long the bacilli survived after vaccination. He considered that investigators should not in any way relax their efforts to secure an immunity for man against tuberculosis and that there was certainly great hope for the future treatment of the disease in man. He believed that further researches along the line of securing such immunity would in time stay the ravages of the great white plague.

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[1] Of these one was reported, Cotton and C. P. Sylvester, Boston Medical and Surgical Journal, cxlix, 1903, p. 735-736, the other five are given herewith.

[2] Robert Jones (Liverpool) Annals of Surgery, 1903, xxxv, p. 697.

Thursday, May 17, Morning Session.

Sociological Section.

TUBERCULOSIS NOSTRUMS.

Samuel Hopkins Adams, New York, read this paper. He said tuberculosis was the fatal error of the medical profession as was demonstrated by the great array of patent medicine advertisements to be seen everywhere claiming that their proprietors, and they alone, were the saviors of the human race. These gave one the impression that anyone could cure tuberculosis except the regular medical practitioner. The proprietors of Liquizone, Bochees' German Syrup, Peruna and Duffy's malt whisky were among the most flagrant of these advertisers. He said that thousands of sufferers read these advertisements and that therein lay the great danger of such frauds. He divided these so-called remedies into the actively harmful, including those which contained such drugs as hashhish, opium and alcohol, and the passively harmful, which simply stimulated false hope and diverted the patient from the use of proper remedies. Every vendor of these drugs, he said, was a self-confessed swindler. Most of them would not claim that their remedies were a cure for tuberculosis, except in their advertisements. He said that while the proprietors of Dr. Bull's cough syrup, for instance, say that they do not claim to cure tuberculosis yet their advertisement specifically stated that "there is no case of consumption it will not cure." He said that Dr. King's new discovery, which the advertisements say "strikes terror to the doctor" depends upon morphia and chloroform for its effects. The negatively harmful remedies, he said, consisted of a number of proprietary medicines largely supported by physicians. On investigation he had found that the endorsers of these remedies were, in a majority of instances, quacks or comparatively unknown practitioners. He believed, however, that this vicious business was now on the wane. Piso's consumption cure, for instance, was now only claimed as a cure for "coughs and colds." As one of these quacks had told him "the public is getting wise on consumption" and it would be necessary for him to turn his attention to some easier disease as cancer. Mr. Adams said that there could be no doubt that the work of the National Association for the Study and Prevention of Tuberculosis and especially the work being done in the public schools, was arousing the public to a proper consideration of the subject. He desired to urge every speaker to devote a few words to explaining the uselessness and harmfulness of so-called consumption cures. He referred to the attempts to pass bills for the restriction of the patent medicine business and explained in detail the difficulties that had been encountered in various states. He said that many of the better newspapers had now taken up the fight and were excluding such advertisements from their columns.

Dr. Frank Billings, Chicago, opened the discussion on this subject. He said that it was unfortunate that in a discussion of this kind there could not be two classes of people in the audience; first, the people who suffer, and, second, members of the medical profession who needed teaching in the matter. He desired to go further than Mr. Adams and to say that all drugs, so far as being a specific for the cure of tuberculosis was concerned, were worse than useless. He said there was no practical difference between the patent medicines advertised for the use of the laity and the so-called ethical preparations. The alleged formulæ were often not true and the ingredients being given without doses rendered them no better than nostrums. He said that formerly we did not understand what tuberculosis was and its only management was by the use of drugs, which were of several kinds; first, preparations intended to improve the nutritional condition, as the fats, cod liver oil, and other hydrocarbons; second, preparations supposed to modify to some degree the changes occurring in the tubercle, as the phosphates, calcium phosphate, for instance, with the idea of bringing about calcareous degeneration of the tubercle. Then we had the remedies to combat fever, as aconite and other preparations of that kind. The history of medicine showed that the lay people come to believe, after a quarter of a century or more, the things taught by the medical profession at that time; their belief to-day was, in many instances, what was taught by the medical profession fifty years ago. It was unfortunate, too, that a large number of the medical profession itself was no better educated in this matter. He deprecated the recognition by many of the medical profession of the so-called ethical preparations. He said that in America people were taught to believe what they read and many people believed what they read when they would not believe the spoken word. He said that many of the so-called "special manufacturers" did not even put up their own preparations, but had them made by some general manufacturer and he thought that many of these people were doing more harm than the patent medicine manufacturers because they hoodwinked not only the public but the medical profession also. He referred to Antikamnia and Fellows' Hypophosphites as examples of remedies that had been advertised to the public through the medium of the physician. This condition of affairs could only be met by educating the physicians in the matter. He referred to the better organization of the medical profession throughout the country and the effect that it was having in bringing together medical men and arousing their interest in this subject. He said the Proprietary Association of America was fighting the matter bitterly and that they had a great deal of money back of them and that many of the manufacturers who called themselves ethical were allied with them. They had millions and were able to even approach the National Legislature, but the medical profession was gaining what it had never had before, the assistance of lay forces and that with such journals as *Collier's* and the *Ladies' Home Journal* helping along that line much was to be hoped for.

Dr. J. Willoughby Irwin, Philadelphia, followed Dr. Billings in the discussion of the subject and said that he had had occasion to interview a great many of the druggists on the question and had been informed that it was almost always the lower classes who bought the nostrums because they did not want to pay the ordinary fee to a physician and then go to the store and pay another fee for the medicine. They tried to even this up by buying something that they supposed would at least do them no harm and would at least help their cough, their chief idea always being to get rid of the cough, which they looked upon as the disease itself. Many, however, had told him that there were people of wealth who came to buy such remedies as Piso's Consumption Cure and Father John's Cure, with the idea that while the physician treated the disease itself these remedies gave greater relief for the cough. He thought that the daily press and journals were doing yeoman work looking to the eradication of this evil, but that concerted action was needed to win the fight. The people must be reached through the public schools, by means of the teachers, as well as through the press. He thought a committee should be appointed by the Association to take charge of the crusade against the nostrums advertised for the cure of consumption. He suggested as one method that the committee should write to druggists asking for the names of five or more people using such remedies and mail them literature. This would be taking up the matter in the manner that the patent medicine men themselves used.

Dr. D. S. Wilson, Louisville, Ky., said he could not refrain from saying a word in defense of the druggist. He believed that, as a general rule, they did not desire to sell patent medicines, first, because there was little profit in it for the druggist; and, second, because as a class, they were as conscientious as physicians, but the trouble was that the people demanded the nostrums and that as the drug business was a trade, as well as a profession, they could hardly be expected to refuse to supply the demand.

TUBERCULOSIS AMONG THE INDIANS.

Commissioner Francis E. Leupp, Washington, D. C., presented this paper. He said, as the safe guardian of 270,000 red children he felt the keenest interest in the investigation of the cause and the search for preventive and remedial measures to be used in combating this special scourge of the Indians, tuberculosis. During the last year they had collected at the office of Indian Affairs data from 91 of their field physicians, representing the conditions among half the Indian population of the United States. These reports showed nearly 3,000 cases of tuberculosis to exist when these figures were gathered together, of which more than one third were of the pulmonary type and more than one half of the glandular type. To every 1,000 Indians reported on there were nearly 10 cases of pulmonary tuberculosis, 15 of glandular tuberculosis and nearly 2 cases of tuberculosis of the bones and joints. He also gave statistics from the larger Indian schools. At Carlisle, where in the judgment of so many Western persons, Indians readily sickened and died, there were 10 cases of tuberculosis in a total membership of 904. On the other hand, at Pierre, S. D., in the midst of a country where it was customary to send white persons with weak lungs, 11 cases out of a total of 146. At Chilocco, Oklahoma, 1 case among 748 pupils. At Haskell, Lawrence, Kansas, 1 case among 814. He referred to the recommendation made in his annual report for 1905 as to the necessity of keeping viciously inclined children away from those liable to be corrupted by contact and insisting upon separation of diseased from well children. He had also appealed for authority to distribute circulars regarding the prevention and spread of the disease.

Dr. James R. Walker, Pine Ridge, S.D., read a paper upon the same subject. In 1878 he had gone among the Indians to die of tuberculosis, bidding his friends good-by and never expecting to return among them. When he had gotten among them he had thought it might be well to make some study of the material at his command and in time he had come to see things that were not written in textbooks. It was of his work among the Sioux that he spoke particularly. He had found the Indians affected with the disease to a much greater degree than the white residents. The population of Pine Ridge was 6,686; 4,870 full blooded Sioux and 1,816 mixed bloods. For ten years an effort had been made to keep statistics and the data so obtained formed the basis of the paper. He found that tuberculosis among the Indians did not differ in any respect from the disease among the whites; the disease ran the same course and produced the same results. When they abandoned the tepee and began to live in houses the disease greatly increased. He considered that the question of food was only a question of fortifying the system against disease and said there was no evidence that meat, even though tuberculous, caused the disease among these Indians. The sanitary condition of the tepees had been far superior to their houses which had been built in the most unsanitary manner. The conditions were such as to lower the resisting power of the Indians rapidly. Every case was caused by the waste products of the disease and no case developed in any other way. It had been fully demonstrated that tuberculosis could be prevented among them by keeping them from exposure to the infection. He submitted the proposition that a practical method of suppressing tuberculosis among the Indians would be to establish sanitary camps where all the infected should be collected and maintained until each case terminated.

Dr. M. K. Sniffin, Philadelphia, also read a paper in the discussion of this subject. He had been at Pine Ridge during the summer and had had an opportunity to investigate the conditions there, which were such that it was not surprising that the death-rate from tuberculosis was so high; it was more surprising that it was not a great deal higher. He said the territory under Dr. Walker's charge was about the size of the state of Connecticut, with a population of about 7,000 and the only way to get to them was by means of horse and wagon; it often required a week's time to reach a patient. Another of his difficulties was that in prescribing it was almost impossible to have his instructions carried out. He thought too little attention had been paid in the past to the medical service of the Indian Department and that it should be thoroughly remodeled. He thought the force should be increased as it was out of the question to expect one or two physicians to look after the health of 7,000 of these people. The conditions in the Indian homes were most unsanitary, often as many as fifteen occupying one hut, to say nothing of as many dogs. If the Indian was to be built up something like decent permanent homes must be established for him, and he thought the Association could do much in bringing public sentiment to bear upon Congress to furnish proper means to carry out such measures.

Dr. Norman Bridge, Los Angeles, in discussing the subject, said the papers had demonstrated his own belief that tuberculosis spreads because of lack of fresh air and proper hygienic surroundings as well as by the distribution of the germs of the disease, by lowering the resisting power of the individual. He desired to know whether it had been Dr. Walker's experience, as had been stated by some, that the existence of tuberculous glands of the neck lessened the likelihood of the individual acquiring pulmonary tuberculosis later in life. He had found that among people with scrofulous scars the proportion of pulmonary tuberculosis was about one half.

Dr. James R. Walker, Pine Ridge, S. D., said in answer to Dr. Bridge that he had no statistics on the subject but he had certainly seen many cases of pulmonary tuberculosis in patients who had had tuberculous glands earlier in life.

Dr. Geo. M. Kober, Washington, D. C., said his sympathies were very much with the Indians among whom he had lived in the capacity of military surgeon for eighteen years and he thought Dr. Walker had struck the keynote of the whole situation in placing as the most rational predisposing cause of tuberculosis among the Indians the radical changes in their mode of living. We had taken the Indian from his tepee without suggesting to him how he might build a sanitary home so that from the well-ventilated tepee he had gone into a hut of the worst sanitary construction. Proper food and proper housing would do more than anything else to solve the problem for the Indian and he thought that the attention of the Commissioner of Indian Affairs should be called to Dr. Walker's excellent paper.

TUBERCULOSIS AMONG THE NEGROES.

Dr. Thomas Jesse Jones, Hampton, Va., read this paper in which he aimed to show the great importance of the study and prevention of the disease among this race. He believed that few knew the extent of the prevalence of the disease in this race and that still fewer knew of its effect upon the vitality of the nation. There were three factors that had to be considered — the extent of the disease in the race, the proportion of that race, and their proximity to other races. He demonstrated the great prevalence of the disease among the negroes of the south and considered that it was such as to demand the most careful consideration of the Association. He thought that only the Irish offered a problem at all comparable with that of the colored race. He said we could not afford to overlook the reflex factor of the black race upon the white and unless the white race could lift them up he believed they would surely pull the white race down.

Dr. Robert Wilson, Charleston, S. C., in discussing the subject said that he thought those living in Northern cities where the proportion of blacks to whites was so much less than in the South could scarcely appreciate the importance of Dr. Jones's paper. He agreed with Dr. Jones that it constituted a menace to thousands of the white population because they were brought into contact in every relation of life. Dr. Wilson gave a series of statistics bearing upon the question dating back from 1822. The great prevalence of the disease in the negro race, he believed, was due to two factors, ignorance and poverty. They were too poor to live in proper quarters and too ignorant to take care of themselves. He suggested as a means of remedying the condition sanitary inspection of their quarters and segregation as a help towards this end.

Dr. S. A. Knopf, New York, said that among other things we must endeavor to educate the negro physicians who did not seem to have grasped the importance of the subject at all. He thought that much of the trouble in the negro race in the cities was due to their long hours of work and their irregular habits of living. They had to be taught that economy and proper and regular methods of living were the only things that would remedy the condition. He considered the problem a most serious one and that it was essentially necessary to combat the disease in this race in order to keep it from the white race.

Dr. C. L. Minor, Asheville, said that the statistics concerning tuberculosis among the negroes in the south were absolutely worthless, not worth the paper they were written on. In his experience he said no negro who develops the disease recovers. Unless the disease could be prevented nothing could be done. He believed that the disease would eventually settle the whole race question. Any preventive work would depend upon the intelligence of the negro and unless that could be raised little could be accomplished.

Thursday, May 17, Afternoon Session.

Surgical Section.

TUBERCULOUS PERITONITIS.

Dr. Richard Douglas, Nashville, read this paper. He said that 16% probably represented the frequency with which tuberculous peritonitis occurred in tuberculous subjects. In the 5,687 intra-peritoneal operations in St. Mary's Hospital, Rochester, Minn., 3% were for some variety of tuberculosis and out of 883 collected autopsies upon tuberculous children, Biedert had found peritoneal involvement in 18.3%. It was more frequently met with clinically, he said, between the ages of twenty and forty years; yet there were no exact limitations as to age; 56 out of the 98 cases studied by Shattuck were between the ages of fifteen and thirty. In children it was more common between the ages of two and four. As to sex, he said, the Mayos state that at the operating table they find about four females to one male with tuberculous peritonitis; Osler gave the ratio as 2 to 1; Konig collected 131 cases, 120 in women and 11 in men; when the element of sexual activity had been eliminated, as in children, it had been found that tuberculous peritonitis was about equally distributed in the sexes as in 69 cases studied by Rotch there were 39 girls and 30 boys. Referring to heredity, he said, Rotch and Mayo had found a family history in about 30%. The essential factor in the production of tuberculous peritonitis, Dr. Douglas said, was Koch's bacillus and as this plant had to be looked upon as one of relatively high development, belonging to the actinomycoses of the group of Oöspora, it would deserve the name of Oöspora Kochii. He said that tuberculous peritonitis was but one of the local manifestations due to the action of the bacillus tuberculosis. The statement that it was always secondary was practically unchallenged, yet in view of the conclusive proof furnished by Walsham, he felt that evidence would soon be forthcoming that the peritoneum, like many other structures in the body, may be the primary site of the lodgment of the bacillus tuberculosis. He classified the channels of infection as (1) hereditary transmission; (2) lymphatic vessels; (3) blood vessels; (4) epithelial channels; (5) inoculation into the skin and other tissues. Evidence had been shown by Martin, Schmoll and Birch Hirschfeld that the infection may take place intra-uterine through the circulation. Dr. Douglas considered the question of whether or not there could be a primary infection of the peritoneum and said that Theobald Smith had recently made the assertion that "tubercle bacilli can pass through at least one gateway of the body without being detained." Whether tubercle bacilli can gain access through intact mucous membrane he thought was a matter very difficult to determine. Sydney Martin had apparently shown that the bacilli can pass through healthy intestine without leaving evidence upon the mucous membrane of the bowel. Dr. Literer, Nashville, had also shown that the mesenteric glands may become infected through the intestine without lesion of the wall of the gut. Against the idea of primary tuberculous peritonitis, he said we had the statistics of Borschke, Primbram and Taylor Cummins. In speaking of prognosis Dr. Douglas said the effects of operative treatment had been to teach us that tuberculosis is often present without producing special symptoms and with a natural tendency to recover. Peritoneal tuberculosis appearing as a part of general miliary tuberculosis offered little hope of even temporary arrest. The subacute and chronic ascitic forms were most amenable to operative treatment. In only exceptional instances should operation be undertaken in the fibrous form. All forms except the peracute were at least temporarily benefited. He considered that in general miliary tuberculosis medicinal and hygienic measures only should be employed; in dry fibrous peritonitis surgical measures should not be resorted to except to meet complications, as intestinal obstruction; in peracute cases, those of violent onset resembling appendicitis, the expectant treatment should be preferred. In the ascitic form he thought the simple incision not sufficient; the exudate should be completely removed, but efforts should not be made to detach adherent viscera further than to free encapsulated fluid. He thought the general conclusion justified that tuberculous peritonitis can be cured by laparotomy. The unsuccessful cases were those that have advanced disease in other organs. Operative results, he said, give a recovery rate of from 25% to 30%. The prognosis after treatment by both medical and surgical methods had been carefully studied by Shattuck; out of the 98 cases treated, the end results were known in 57 cases; 25 of these were treated medically; the ultimate mortality, reaching to a period of eleven years, was 68%; 32 cases surgically treated, mortality 37.5%. From these figures it was learned that tuberculous peritonitis might recover under simple medical treatment and evidence was not wanting to show that an anatomical restoration might be obtained.

Dr. Wm. Litterer, Nashville, Tenn., in the discussion of this paper said, for the past year he had been conducting experiments upon animals (dogs, guinea pigs, cats, etc.), with the view of ascertaining whether it was possible to produce tuberculous peritonitis from the alimentary tract without involvement to the wall of the gut, mesenteric or retroperitoneal glands. He said the open question as to whether we can have a primary infection of the peritoneum was answered in the negative by such men as Veit, Nothnagel, Vierodt and a number of recent writers. The results of his experiments had only been partially successful in so far as demonstrating a primary peritonitis was concerned, but in the course of the investigations he had been able to demonstrate the passage of the tubercle bacillus through the normal intact mucous membrane without showing any evidence of lesion at the point of entrance. This was the opinion of Walsham, Harbitz, Theobald Smith, Ravenel and many others. Baumgarten's views, he said, ran counter to this for he insisted that the bacilli always produce some lesion at the point of entry. He gave a *résumé* of the experimental work he had done and said the investigations would be published in detail subsequently.

Dr. Alexander Ferguson, Chicago, said in discussing this subject, that ever since the enigma of septic infection after operation was practically solved by Lister, surgeons the world over had not hesitated to explore with the knife and hand regions of the abdomen diseased or suspicioned of being diseased, that had been previously considered too dangerous to survey. Tuberculous peritonitis, he said, runs its course of more or less destruction uninfluenced by any known drug or combination of drugs that had been administered for its relief; the acute and subacute cases were usually diagnosed by laparotomy and that too often while searching for something else. Many of the chronic cases were beyond relief by the time the diagnosis was made. Tuberculous peritonitis, he said, like many other diseases within the abdominal cavity, entered the realm of surgery just when the patient was sliding into eternity. He thought that at the present time the contention that tuberculous peritonitis was a surgical disease was incontestable. When laboratory workers should have discovered a cure, probably a serum, capable of cutting short its progress, or obtaining results superior to operative procedures, then the surgeon would rejoice in reassigning the disease to the physician. The bacteriological chemist must join hands with the surgeon for the elucidation of the mysterious questions connected with inflammation of the peritoneum. Dr. Ferguson said the abdomen should be opened below the umbilicus in acute or subacute cases as soon as the diagnosis is made, or to make a diagnosis; the hand to be passed in to feel every structure within the peritoneal cavity in search for a primary focus and having found it, it should be removed, whether it be the Fallopian tubes, uterus, ovaries, appendix, gall bladder or section of bowel. He said a turbid, or milk-like fluid should not be washed out because the phagocytes in it were the principal curative agents provided by nature, but clear looking ascitic fluid should be washed out as it had no curative power. When clear peritoneal fluid had been removed the cavity was to be filled with normal salt solution and iodoform emulsion (10% in glycerin) over the diseased parts. The speaker cited two cases to illustrate that early surgical interference was not contraindicated in acute tuberculous peritonitis. In chronic tuberculous peritonitis he often opened the abdomen over the most prominent part, explored with the hand, broke down cheesy material, liberated encysted fluid, flushed away tubercular debris with saline solution, mopped dry and smeared with iodoform emulsion. Intra-abdominal tubercular abscess was treated by evacuation, insertion of iodoform emulsion and drainage.

THE TREATMENT OF TUBERCULOSIS OF THE BONES AND JOINTS.

Dr. Joel E. Goldthwait, Boston, read this paper. He held that if the patient was otherwise in good health there was no reason to believe that the area of disease should at once be excised. If to save the life it was necessary to sacrifice a part, it should by all means be done, but he thought we should be very sure first that such radical measures were required, a part lacking much of its function being better than the best artificial contrivances. He thought the general treatment should not be overshadowed by surgical measures; that every hygienic measure should be used just as in tuberculosis of the lungs; life absolutely in the open air, in tents or shacks, or specially ventilated rooms, plenty of sunlight and good feeding. This, of course, was also the best preventive measure. Local treatment, he said, should consist in the preservation of function of the part without increasing irritation at the site of the disease. Just as it was important to exercise the lungs in pulmonary tuberculosis, so he thought it was necessary when the disease attacked the bones and joints and function should be allowed up to the limit of toleration. In this way, he said, healing takes place much more rapidly than where limitation of function makes all the parts sluggish. He believed that conservative measures should be given a thorough trial until other lines of treatment became advisable. The operation to be performed in a given case, of course, depended upon the part affected; amputation or the entire removal of the affected part might, in some cases, be demanded, but at least a short period of treatment under favorable conditions should first be urged. The presence of an abscess, he said, was generally first made known by interference with the function of a part and the mere presence of an abscess, so long as it did not interfere with function was of little importance as long as it was closed. He thought if the abscess could be removed and the primary focus at the same time it would be desirable to do so, but it had to be borne in mind that a free opening was not desirable as it offered a fresh mode of entrance to infection. He thought that many of the deaths were due to systemic infection in this way and not to the tuberculosis. He advocated aspiration in such cases rather than free drainage. If the pus was shown to be generally infected, as by the temperature, etc., it should be evacuated. He believed that if the treatment of tuberculosis of the bones and joints were carried out along these lines the results would be better.

Dr. Wisner R. Townsend, New York, opening the discussion on this paper, said, that owing to the great advances that had been made of late years in the knowledge of the etiology and pathology of the diseases affecting the bones and joints the question of diagnosis was deserving of special consideration at the present time. Until recently, he said, all chronic affections of the bones and joints, occurring in childhood were considered to be due to tuberculosis. Arthritis caused by infection from pneumococcus, streptococcus, staphylococcus, gonococcus, colon and typhoid bacilli and micro-organisms of other diseases were classed as due to tuberculosis. The arthropathies occurring in nervous diseases were often erroneously included with the above and the same was true of lesions of scurvy and the infectious processes occurring in measles and scarlet fever. Rheumatism and tuberculosis had been the two diseases supposed to cause most of the diseases of the bones and joints. Even coxa vara and fracture of the neck of the femur in children had been classed as hip disease. To-day, the speaker said, these conditions could be easily and positively made out and the profession was keenly alive to the necessity for greater proficiency in diagnosis. The addition of the x-ray as an aid to such diagnosis had already proven of great value and its use should be encouraged. He thought that too much attention should not be paid to the presence or absence of tuberculosis in the family history, but that the tuberculin and other tests should be thoroughly tried in surgical tuberculosis in order to ascertain their real value as aids to diagnosis. He considered tuberculosis of the bones and joints a most serious condition and one that needed the greatest care in treatment, both constitutional and local. Outdoor life, supplemented by surgical and orthopedic treatment, was justly meeting with great favor. He thought there was no reason why mild cases of tuberculosis of the bones and joints should not entirely recover. Most operations were performed when sepsis was already a serious factor and this should be guarded against. Mechanical treatment should be employed, he thought, from the beginning, but not continued blindly after sepsis had occurred. Apparatus of varying types should be used to preserve and restore function where possible. He thought that when amputation was necessary, except in rare instances, it was for sepsis or in neglected cases.

Dr. A. T. Cabot, Boston, said that surgical tuberculosis was in the vast majority of cases a process secondary to some deeper infection, the primary focus being usually in the lymphatic system, connected either with the respiratory or digestive organs. The treatment, he considered, should be both general and local, hygienic and operative. He thought it was the physician's first duty to put the patient in surroundings of air and sun such as had abundantly proved their efficiency in the cure of all forms of tuberculosis; secondly, he should provide in every possible way for the fullest nutrition; thirdly, he should give the diseased parts rest by apparatus which interfered as little as possible with the motion and exercise of the unaffected parts of the body; fourthly, that after these fundamental needs had been provided for he should proceed by operative measures to remove or alleviate local conditions; fifthly, it was his duty to protect the community from contagion and to this end he should teach his patients to destroy all discharges from tuberculous processes; sixthly, that he should impress his recovered patients with the importance of so arranging their business or occupations that they might be able to pass a large part of their time in the open air and so guard against a recurrence of the disease.

Dr. B. E. McKenzie, Toronto, was pleased at the emphasis laid upon the matter of diagnosis by Dr. Townsend, but he had come to look upon it as a rather certain factor now and would not be inclined to attach as much doubt to it to-day as Dr. Townsend had. There were three elements of particular importance, he thought, heredity, lowered vitality and infection, to be considered. He did not believe the element of heredity should be considered as obsolete, but that it was of importance in considering the question of prognosis. As to lowered vitality it was of the greatest importance that children should be carefully guarded against all that tended to lower their vitality, especially in the zymotic diseases. As to rest as an element in the treatment he thought a good deal depended upon how the rest was secured. He thought much of the orthopedic apparatus used in hip disease and disease of the spine was antiquated and out of date; he did not believe the apparatus could keep the spine even fairly well at rest. He advocated the use of the Bradford frame and said that with it a great advantage was that the child could be kept out of doors. As to amputation he thought that where there was but one lesion as in the limb amputation might sometimes be an important conservative measure. As to abscesses, they might be left alone very largely. As to the position of the leg, he thought there should be flexion of from 5° to 15°.

Dr. Joseph Bloodgood, Baltimore, said the paramount object of treatment was the cure of the disease with complete function of the joint, the latter being most difficult to obtain. The three factors in treatment were local rest of the diseased part, surgical intervention in selected cases, and the general hygienic treatment of the patient. To accomplish a cure with restoration of joint function depended more upon early recognition of the disease than any other factor. The public, therefore, had to be educated to the early symptoms suggesting lesion of the bone or joint, and it was necessary that the general practitioner should be keen in his differential diagnosis. He thought a course of treatment appropriate to tuberculosis might be inappropriate or even harmful to other lesions. The tuberculin test and the x-ray should be considered essential in the diagnosis. He believed that both in children and adults the diagnosis of inflammatory rheumatism was too often incorrectly made. The paramount factor at the outset of treatment was diagnosis. In many instances precious time was lost because of an incorrect diagnosis of a form of tuberculosis in which non-operative treatment is indicated. He agreed with Dr. Goldthwait that especially in children and in the early stages of the lesion equally good results were obtained by non-operative treatment and also that the fixation of the affected joint should be modified towards allowing some motion. He believed that in all forms of surgical tuberculosis the open air or hygienic treatment was usually incomplete. He impressed the fact that treatment locally and generally should be continued months and perhaps years after symptoms had disappeared. The indications for surgical intervention, he said, were manifold, and varied with the age, duration of the disease and extent of the lesion. He thought that the employment of the method of Bier, the employment of hyperemia had not been given proper consideration in this country. He was skeptical as to the value of the various joint injections of iodoform, etc. He thought that in children operation was contraindicated, as a rule, in all stages. In case of abscess he thought better results were obtained by direct attack of the bone focus than by any treatment of the abscess itself. He thought there was a tendency to be too satisfied with a cure and impaired function.

Dr. W. S. Baer, Baltimore, said he heartily agreed with those who thought that in the treatment of tuberculosis the less operative work that was done the better, particularly in cases of children, but there seemed to him to be a certain class of cases occurring after the age of fifteen in which it was possible to recognize a very early tuberculous focus in which the disease should be attacked radically. With the aid of the x-ray and tuberculin a pretty definite idea could be obtained of the condition. It seemed to him better to eradicate a small focus where possible than to risk a prolonged treatment. He agreed with Dr. Goldthwait in regard to allowing the joint a certain amount of motion and within certain limits allow the normal function.

Dr. S. von Ruck, Ashville, desired to call attention to the use of laboratory products of the tubercle bacillus and said that for the last two years they had been experimenting with various culture products in a series of 2,000 cases and they had been convinced of the value of this method, used in conjunction with dietetic and hygienic treatment. They had had remarkably good results, he said, in the treatment of joint tuberculosis.

THE SURGICAL TREATMENT OF TUBERCULOUS GLANDS OF THE NECK.

Dr. Chas. H. Mayo, Rochester, Minn., read this paper. He said the lymphatic system was increasingly appreciated for its protective and nutritive value as well as for its action in maintaining metabolism, but that until recently it had received but scant attention from anatomists and that at present the great majority of the profession did not consider the glandular system except when gross evidence of disease was present. The defense function was important and it was not unusual for the glands to sacrifice themselves in resisting invasion. He reviewed the anatomy of the lymphatic system and said that when a gland was found enlarged the first thought that would arise was, what is the infection? Where did it gain entrance? If a number of varied groups were diseased we had to ask what is the general or constitutional cause of the manifestation? In the cervical glands the most probable source of entrance would be the nose, throat, ear, scalp or teeth. By far the most common source of infection apparently was the tonsil. The high percentage of tuberculosis found in the tonsil had been surprisingly instructive. The diseases most frequently mistaken for tuberculosis of the glands were sarcomas, Hodgkin's disease, carcinoma, acute mixed infections, the acute glandular fever of Pfeiffer and occasionally phlegmon. It was surprising, he thought, that more mistakes in diagnosis were not made considering the number of dissimilar causes of glandular enlargement. The first node involved and palpable was usually the tonsillar gland, felt in the space behind the angle of the jaw. He said that there are many lymph glands in the parotid structure and when primarily involved by tuberculosis it usually meant that the infection had come from the middle ear. The post-pharyngeal glands when involved by tuberculosis were likely to liquify and open into the cellular space behind the pharynx developing a post-pharyngeal abscess. He believed that radical operations upon very acute tuberculosis were questionable procedures. He classed treatment as non-operative and operative, the first including general hygiene, medicinal, x-ray and congestive therapy. The prophylactic operative included the removal of the tonsils and adenoid tissue in the young. Direct surgical treatment he considered as palliative and radical. He believed that tuberculous glands were best treated by their removal as the glands as such were destroyed by the disease while the bacilli might be held for an indefinite period ready to develop in a lowered state of vitality of the patient. The radical operation should be a complete one for the removal of the group or groups involved. Muscles, as a rule, should be left uncut and the essential motor nerves intact. The writer described in detail his method of operating and said these radical operations should be classed among the most difficult of any surgical dissection done with a low mortality, but that one was more than repaid by the wonderful results obtained. He expected the young adult to gain fifteen to twenty pounds during the first three months after operation. There had been no mortality in the total number of cases reported.

Dr. Floyd W. McRae, Atlanta, opening the discussion on Dr. Mayo's paper, said the point made by the writer with reference to complete removal of primary foci was an important one, but it was a matter not easy of accomplishment. He agreed with the essayist that we have rarely to deal with a distinctly localized tuberculosis. Tuberculosis within the substance of the parotid gland, he said, were very difficult of diagnosis; he had made the mistake of thinking them due to sarcoma and had to change the diagnosis on opening into the structure. With reference to treating the open wound he said he had had no experience with the various iodine solutions but had confined himself to carbolic acid followed by alcoholic and temporary drainage with silk worm gut as first suggested by Ferguson, of Chicago. These were left in twenty-four hours and drained out the excess serum. He thought that those who had not tried the incision recommended by Mayo would be pleased with the increased facility for removing these glands in that way.

Dr. John H. Gibbon, Philadelphia, said that this form of tuberculosis was one which appealed to surgeons because if there was one form of tuberculosis which the surgeon sees that may be considered as localized it was this one. He considered the question of diagnosis a most important one and thought it was only in recent years that differentiation had been attempted. A condition often overlooked was hyperplasia of the lymph nodes occurring in the cervical region; they are removed and no tubercle bacilli found. The next in importance was the glands in Hodgkin's disease; sometimes with these the differentiation was impossible. He believed that in the earlier stages of the disease all would be agreed that it is desirable to try the alteratives with hygienic and climatic treatment. He was especially convinced of this where one group of glands only were affected. With outdoor life, such alteratives as arsenic, iodides in some form, particularly hydriodic acid, improvement occurred. Where chronic and where suppuration had taken place their removal was advisable.

Dr. A. H. Ferguson, Chicago, said the first thing looking to a diagnosis was to carefully inspect the nose, throat and mouth and to have any abnormal condition there corrected. He deprecated the use of the x-ray, unless used in connection with suitable change of climate. He did not think the kind of incision materially mattered. The incision spoken of was one, however, that he used frequently. There was one objection and that was the anesthesia that followed in the neck on account of the severance of the cutaneous nerves. Injury to the facial nerve, too, was another danger. Injury to the sympathetic and to the spinal accessory had also occurred. He deprecated the complete operation where there was a mixed infection. The only case he had lost was one in which he had operated in spite of a mixed infection.

Dr. W. W. Keen, Philadelphia, said he had never followed the practice of dividing the sterno-cleido muscle as he had always found that by lifting it he had been able to get access to the glands with perfect ease. The principal glands to be removed were those in immediate contact with the jugular vein and occasionally, though rarely with the thoracic duct. Injury had occurred more frequently to the thoracic duct in the removal of sarcomatous glands because of the greater adhesions. He said he was a strong advocate and had practised for years the thorough extirpation of these glands. He removed every gland he could find, big or little, because he was sure the smaller ones would become enlarged as they were probably already infected. He had found it often difficult to make the diagnosis between tuberculous glands and Hodgkin's disease, but he had found that in the tuberculous glands much more commonly there were chains of glands matted together which could be distinguished as individual glands in a mass, rather than the enlarged single glands met with in the earlier stages of Hodgkin's disease.

(*To be continued.*)

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Recent Literature.

Infection, Immunity and Serum Therapy in Relation to the Infectious Diseases which Attack Man; with Considerations of the Allied Subjects of Agglutination, Precipitation, Hemolysis, etc. By H. T. Ricketts, M.D., Instructor in Pathology, University of Chicago. Chicago: American Medical Association Press. 1906.

The series of articles on immunity which appeared in the editorial columns of the *Journal of the American Medical Association* during the year 1905 have been revised and published separately. They form a volume of 599 pages, which must be regarded as one of the notable medical productions of the year. The interesting but increasingly complex subject of infection and immunity is presented in a clear and logical manner.

The author states in the preface that "it was thought best to treat the subject broadly, to begin with the fundamental principles of infection and resistance and to introduce the reader to the more complex conceptions of the present time by taking him briefly over the main historical and developmental steps."

The first part of the book is devoted to general topics, while in the second part individual diseases are discussed. An attempt is made to group the infectious diseases on the basis of immunity. The volume is well printed and provided with a good index. It is to be regretted that detailed references are not given to the authorities cited in the text.

Indigestion: An Elementary Study of Its Causes and Treatment. By Fernandez Clarke, L.S.A., Lond., L.R.C.P., Lond, M.R.C.S., Eng. etc. New York: William Wood & Co. 1906.

This small volume of eighty-five pages contains many inaccuracies, and is too condensed to be of real value.

The Operative Treatment of Fractures. By W. Arbuthnot Lane, M.S., F.R.C.S., Surgeon to Guy's Hospital, and Senior Surgeon to the Hospital for Sick Children, Great Ormond Street. London: The Medical Publishing Company, Limited. 1905.

Mr. Lane has placed the profession under obligations to him in publishing this "brochure" on the operative treatment of fractures. He states that he has confined himself more or less to dealing with the general principles of a sufficient number of examples to illustrate the facts he has put forward. For a number of years the author's name has been identified with the operative treatment of fractures. Constantly he has appealed in his writings to surgeons to not accept the conventional results of the treatment of fracture, but to attempt, at least, to gain better results. This he has undoubtedly accomplished in many cases and he has certainly made surgeons consider the wisdom of interfering in fractures that were not in ideal position. The book is beautifully printed and the illustrations are remarkably good.

Diseases of the Anus and Rectum. By D. H. Goodsall, F.R.C.S. (England), Senior Surgeon to the Metropolitan Hospital; late Senior Surgeon to St. Mark's Hospital for Fistula and other diseases of the Rectum. And W. Ernest Miles, F.R.C.S. (England), Surgeon to the Gordon Hospital Diseases of the Rectum; Surgeon to the Cancer Hospital, Brompton; late Senior Assistant Demonstrator of Anatomy at St. Bartholomew's Hospital Medical School, and House Surgeon to St. Mark's Hospital for Fistula and other Diseases of the Rectum, etc. In two parts (illustrated). Part II. Longmans, Green, & Co. London, New York and Bombay. 1905.

This is Part Second of this work on Diseases of the Anus and Rectum. Part First was published in 1900. This part deals with prolapse of the rectum, invagination of the rectum, ulceration, stricture of the anus and rectum, malignant growths of the anus and rectum, benign tumors of the anus and rectum, foreign bodies in the rectum, pruritus ani and syphilis of the anus and rectum.

The book is written for the purpose of setting forth the methods of treatment which the authors from personal experience have found to be of value. The chapter on carcinoma of the rectum is of especial value in that it gives clearly the clinical course of the affection and recognizes that only by early excision of the growth can a cure be effected. The authors have printed the reports of Professors Klein and Woodhead, who have examined tissues from ulcerated rectums. The authors believe that all ulcerations of the rectum are microbic infections. Mr. Harrison Cripps and Mr. Allingham have revised the descriptions of their operations for excision of the rectum.

The book is well illustrated by many new illustrations from photographs. The work evidently presents the very large experience of the senior author. One very distinct advantage in this book is the fact that the operations are described in sufficient detail to make them of real value.

Surgical Diagnosis. A Manual for Students and Practitioners. By Albert A. Berg, M.D. Adjunct Attending Surgeon to the Mount Sinai Hospital, New York. Illustrated with 215 engravings and 21 plates. New York and Philadelphia: Lea Brothers & Co. 1905.

The author has, we think, succeeded in presenting surgical diagnosis "in a clear, definite way to meet the needs of students and general practitioners." His plan has been to present a concise clinical picture of the disease, with its accompanying pathological changes, and then to indicate, so far as may be, the differences between the disease under discussion and the other diseases with which it might be confounded. The many aids that the pathological, bacteriological and chemical laboratories have given to the diagnosis of disease are well presented. The author shows his modern training in his dependence on laboratory aids to diagnosis; this is commendable, but there is a lack of perspective in estimating clinically the values of the different signs and symptoms of disease. The book contains a great deal of valuable information and certainly will not lead the student astray.

The book is illustrated, but the illustrations do not add particularly to its value for they are frequently the extraordinary developments of disease rather than the common type. The book is rather better than the average compend, but has the necessary defects of any book that presents condensed knowledge.

THE BOSTON

Medical and Surgical Journal.

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THURSDAY, AUGUST 30, 1906.

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DENDRITES AND DISEASE.

Theories of nerve action from the pen of Sir William R. Gowers are always worthy of more than passing notice. There are few physicians who take a saner attitude toward progress in neurology than he, and even theoretical considerations from him deserve a most careful hearing. The neurone theory has of late been receiving many hard blows from many sources, but modified though it may be by the progress of research and finer histological methods, the fact remains that as a working physiological hypothesis the ideas and conceptions grouped about this theory have been most useful in the explanation of various phenomena. Dr. Gowers, while recognizing entirely the possible modifications which the theory is likely to undergo in the future, sees in it, as many others have done, a useful means of explanation of many otherwise apparently inexplicable facts.

Accepting the theory in its general outlines, Dr. Gowers in a lecture on "Dendrites and Disease" recently delivered at the National Hospital for the Paralyzed and Epileptic in London, advanced certain ideas not entirely new, but from a somewhat original standpoint. After discussing at some length the modern histological conception of the structure of the nervous system, he finds therein ground for a possible explanation of certain of the neuroses, so-called, which have heretofore baffled explanation. We have, for example, for many years been hearing certain theories regarding the mechanism of sleep, and particularly as advanced by Duval a number of years ago, that sleep may depend anatomically upon dendritic retraction. Dr. Gowers calls attention to the fact that several workers have of late observed that both chloroform and morphine tend to shorten the dendrites and to make their surface smoother. Another fact is still more significant — that these same changes are said to reach a high degree in hibernating animals as compared with animals in a waking state. If this be true and if hibernation and ordinary sleep differ in degree rather than in kind, the conclusion is justified that the relation of the dendrites to each other and to other nerve mechanisms may lie at the bottom of the phenomenon of sleep. In any case, as is pointed out, this theory does not replace any other inasmuch as our knowledge of the physiology of sleep has always been slight.

Thus far, Gowers is supported by the opinions of various other men worthy of consideration. He goes further, however, and in a most interesting way traces the possibility that similar alterations in the contour of the dendrites may account for what we have commonly called certain functional diseases. Chorea, for example, according to this theory may be regarded as a disorder of the dendrites rather than of the nerve cells. If it be admitted that the dendrites possess some mobility, a certain disturbance of their nutrition might conceivably produce the co-ordinate movements characteristic of the disease, chorea. Paralysis agitans is another case in point. It is certain that in spite of most painstaking pathological investigations a really adequate explanation of this disease has not as yet been forthcoming. Senile degeneration of the motor cortex is not, according to Gowers, satisfactory. Here, again, he finds a better explanation in supposing that the intermediate motor impulses find their origin where such impulses originate in the dendrites of the motor cortex. This also explains why the cells show no alterations and their axones remain undegenerated. "The malady," he says, "remains mysterious, but one mystery disappears if we regard it as a senile dendritic disease." Epilepsy he likewise finds a case in point. The sudden so-called motor discharge occurring in the epileptic attack may by this theory be regarded as having its origin in the motor dendrites, passing by their fibrillæ through cells and ultimately to the muscles. Hysterical hemi-anesthesia is also brought forward as a possible example of this supposed action of the dendrites. The receptivity of certain sensory cells is temporarily cut off by the retraction of dendrites. The rapid restoration of sensation in a previously anesthetic part is conceived to take place by an influence which permits the dendrites to resume their normal state. This explanation Gowers finds satisfactory. It is, at least, an hypothesis which appeals to the reason and explains many extraordinary phenomena of excitation and inhibition which otherwise are wholly elusive.

Speaking of the general theories of dendritic retraction, he finds them useful inasmuch as "they enable us to form conceptions of normal and abnormal action not only clearer, but distinctly in advance of those that before were possible. When once we have become accustomed to them it is not easy to go back to the ideas they displace, and we cannot but desire that the new may be proved to be true."

It is unquestionably true that the foregoing theory does not as yet stand on a basis which admits of its general acceptance. To many minds the hypothesis dependent upon such an idea will remain wholly unsatisfactory until the dendrites may either be actually seen to move, or unequivocal evidence of this fact be supplied by comparative histological study. We have no desire whatever to place ourselves on either side of this question. Like many others, it is one which the future will no doubt do much to elucidate. In the meantime, if we demand theories for the explanation of certain abnormal nervous phenomena, we are quite in agreement with Dr. Gowers that they may be found in this fascinating conception of dendritic movement. We question, however, whether in view of this assumption, it is desirable to remit our search for more tangible causes of various affections which on their clinical side, at least, are clean-cut and definite.

SPELLING REFORM.

The cause of spelling reform has undoubtedly received an impetus from President Roosevelt's order that all executive documents shall be written in the form prescribed by the so-called Brander Matthews Committee. As yet only three hundred words have been published, which demand changes in our accustomed spelling, and many of these sound quite as familiar to us in the new as in their old form. The dropping of diphthongs is generally adopted, a change which has long been in vogue, especially in publications of scientific character. Other suggested changes are less familiar and less acceptable.

The President's action has brought out wide diversity of opinion, in the first place as to the advisability of our chief executive taking part in such a matter, and stamping the so-called reform with his approval by ordering the printing of state documents according to the new form, and in the second place, as to the feasibility of forcing a reform in written language by the promulgation of bizarre rules of spelling. We shall await the final outcome with interest and curiosity. That the reform has already gained the sympathy and adherence of many men of literary taste, who are also influential in the establishment of standards of style, is evident from a perusal of the daily press. England is inclined to be conservative as we should expect her to be, but even there a definite weakening is apparent in many directions.

The spelling of the English language is admittedly bad, cumbersome and unphonetic, but in spite of these facts we question whether such drastic changes as many of those suggested will help the situation and not rather lead to still further complications and difficulties. It is certainly a dangerous precedent that our spelling may be arbitrarily changed at the hands of a committee however worthily it may be composed.

For some years past we have been seeing a modified spelling reform in many of our medical terms. The attempt has been made with some success, but with little consistency to drop the terminal "al" which occurs so frequently in medical terms, and also to supplant many time-honored methods of spelling by others supposedly simpler. In general, experience seems to have shown that reform in this, as in other things, must come gradually and in consequence almost imperceptibly. Alterations of language and of spelling are inevitable and desirable, but it will long remain a question whether true reform is encouraged by the enforced substitution of a spelling which appeals only to the somewhat fanciful idea of simplicity and euphony. A safer course is to accept the changes gradually and with as much liberality as our etymological instincts will permit.

MEDICAL NOTES.

A Pasteur Institute in Augusta, Ga. According to the *Journal of the American Medical Association*, the Georgia State Board of Health has passed a resolution for the establishment of a Pasteur Institute in Augusta. Money for establishing the institute will be taken from the funds appropriated by the legislature for this purpose.

The Chair of Physiology at Glasgow. — According to the *British Medical Journal* Diarmid Noel Paton, M.D., B.Sc., F.R.C.P.E., F.R.S.E., superintendent of the Research Laboratory of the Royal College of Physicians of Edinburgh, and Lecturer on Physiology in the Extra-Academical School of Medicine of Edinburgh, to be Regius Professor of Physiology in the University of Glasgow, in place of Prof. J. G. McKendrick, resigned. Dr. Paton was born in 1859, and is the eldest son of the late Sir Noel Paton, R.S.A. He was educated at the Edinburgh Academy; at the University of Edinburgh, where he took the degrees of M.B., C.M., with first-class honors, in 1882, and the degree of M.D. (with a gold medal for his thesis) in 1885; and at the medical schools of Vienna and Paris. In 1880 he took the degree of B.Sc., and was Baxter Scholar. In 1886 he was appointed lecturer on Physiology in the Extra-Academical School of Medicine of Edinburgh, and three years later superintendent of the Research Laboratory of the Royal College of Physicians of Edinburgh.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Aug. 29, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 23, scarlatina 15, typhoid fever 44, measles 2, tuberculosis 27, smallpox 0.

The death-rate of the reported deaths for the week ending Aug. 29, 1906, was 19.66.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Aug. 25, 1906, was 227, against 237 the corresponding week of last year, showing a decrease of 10 deaths and making the death-rate for the week 19.66. Of this number 122 were males and 105 were females; 222 were white and 5 colored; 150 were born in the United States, 71 in foreign countries and 6 unknown; 35 were of American parentage, 154 of foreign parentage and 38 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 24 cases and 1 death; scarlatina, 12 cases and 0 deaths; typhoid fever, 30 cases and 4 deaths; measles, 3 cases and 0 deaths; tuberculosis, 32 cases and 17 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 9, whooping cough 3, heart disease 22, bronchitis 1 and marasmus 11. There were 15 deaths from violent causes. The number of children who died under one year was 74; the number under five years 94. The number of persons who died over sixty years of age was 37. The deaths in public institutions were 92.

There were 2 cases and 2 deaths reported from cerebrospinal meningitis during the week.

Poisoning from Ice Cream. — Some days ago a serious outbreak of gastro-intestinal disturbance occurred at a summer resort, known as Salisbury Beach, among a large number of persons who ate the ice cream of a certain dealer. Later at Newburyport, Mass., a similar effect was produced by the ice cream of a dealer, who had previously done business at Salisbury Beach, when twelve cases, chiefly among children, occurred. Investigation by the State Board of Health has shown a most deplorable state of affairs in the rooms where such ice cream is made. The almost universal condition was one of filth and general uncleanliness, the details of which remind one strongly of the situation recently brought to light in relation to the meat industry.

NEW YORK.

A Centenarian. — Mrs. Susan M. Smith, of New York, died on Aug. 17 in the one hundredth year of her age. She was born in Boston on July 5, 1807, and went to New York with her parents when eight years old.

Trachoma. — Notwithstanding the fact that each detected case involves a fine of $100, the number of persons suffering from trachoma arriving on European steamships has, of late, increased to such an extent that four immigration inspectors have been sent to Europe to visit the ports from which trachoma sufferers most frequently come. They will take measures to put a stop to this, and, it is probable, will establish inspection bureaus at these ports. According to the statement of the Commissioner-General of Immigration, Frank T. Sargent, for the last sixty days there has been an average of ten deportations a day from the port of New York on account of trachoma.

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Miscellany.

MEDICAL EDUCATION IN THE UNITED STATES.

Following its usual custom the *Journal of the American Medical Association* discusses in the current issue many statistics and matters of interest regarding medical education in this and other countries. Speaking of the increase of medical colleges our contemporary comments as follows:

"One discouraging thing in the statistics published this week is the fact that, while small, there has been an increase rather than a decrease in the number of medical schools. On the other hand there is, here and there, an indication of a desire for betterment by combining institutions. During the year the Central Medical College of St. Joseph, Mo., and the Ensworth Medical College of St. Joseph, Mo., merged into the Ensworth-Central Medical College of St. Joseph, Mo. The Medico-Chirurgical College of Kansas City, Mo., the Kansas City Medical College of Kansas City, Mo., and the College of Physicians and Surgeons of Kansas City, Kan., united to form the Medical Department of the University of Kansas. The most noteworthy merger, however, was that through which the Fort Wayne College of Medicine, the Medical College of Indiana and the Central College of Physicians and Surgeons of Indianapolis became the Indiana Medical College, the school of medicine of Purdue University, the latter a semi-state institution. Each of these three schools had become a well-established and recognized institution, and considerable self-sacrificing spirit was shown on the part of the members of each of the faculties in giving up their respective institutions for the sake of having one good school in the state. It is to be regretted, therefore, that another school is being started in Indianapolis, so that, in spite of the merger, there are still to be two schools in that city. We make this comment as a general proposition without entering into the merits of the case. It is, however, such instances as this that discourage those who are desirous of eliminating weak schools by combining two or more into one strong one. In several locations where two, three, or more colleges are struggling along with difficulty, not able to do good, efficient work through lack of equipment, futile efforts have been or are being made to unite them into one institution. Doubtless in time personal ambition on the part of the few will give way to the best interests of the many and minor difficulties be overcome and one strong college take the place of two or more weak ones. Standing, as our country does, as one of the leading nations in commerce, in the arts, in the sciences and in general education and enlightenment, it is certainly to be deplored that she remains a laggard in standards of medical education.

"The total number of medical students (matriculants) in the United States for the year ending June 30, 1906, was 25,204, a decrease of 943 below last year. Of this number 23,116 were in attendance at the regular schools; 1,085 at the homeopathic; 644 at the eclectic; 110 at the physio-medical and 249 at the nondescript (unclassifiable) schools. The attendance at the regular schools shows a decrease of 1,003 below that of last year, a decrease of 546 below 1904 and a decrease of 1,814 below 1903. The number this year is the smallest since 1900. In the homeopathic school there was a decrease of 19 below the attendance of 1905, a decrease of 224 below 1904, the bereing a constant decrease since 1900, and the attendance for each of the past two years has been below that of 1880. The eclectic schools show a slight increase over last year, although the figures of each of the last two years are smaller than previous years since 1900. The physio-medical colleges had 110 this year, against 114 last year and 129 in 1904."

The decrease in the number of students at the regular schools for the last year and the constant decrease in the homeopathic schools since 1900, is worthy of special notice. A decrease in the number of women studying medicine is also shown.

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Correspondence.

IMPRESSIONS OF THE TORONTO MEETING OF THE BRITISH MEDICAL ASSOCIATION.

Success of the meeting. Black coats and silk hats. Hospitality. Notable papers. Sir Victor Horsley on cerebral surgery. Eminent men present. Discussions on food and diet and arteriosclerosis. Immunizing serum for cerebrospinal meningitis. The pediatric section. Representation from the United States.

Toronto, Canada, Aug. 23, 1906.

Mr. Editor: The British Medical Association meeting at Toronto has come and gone; the friendly shakings of the hand are over and the many sharers in the hospitality of the queen city of the West are speeding homeward, or towards the lakes and woods of the Canadian wilderness, or to the Rockies of the West. Some of the foreign guests, Sir Thomas Barlow, of London, Sir James Barr, of Liverpool, among the number, are to turn Bostonwards next month, to attend the dedication of the new Harvard Medical School buildings, whisperings about which have been audible at Toronto through the past week.

The meeting has been in all respects successful for meeting lovers, in spite of the fact that the weather, until to-day, which is cooled down by the fine breath of autumn. has been such as to send the good water of Lake Ontario in full rivulets through the skins of ardent visitors.

Scarlet lined gowns, long black coats and silk hats were more or less in evidence during the first two days, adding a new terror to the sun, but in general even the conventional Englishmen chose the summer costumes of their cis-Atlantic hosts.

The committee of arrangements had admirably played their part and such was the hospitality of the city that lunches, garden parties, dinners, excursions and receptions were provided for every vacant hour. The city itself, with its detached or semi-detached houses, its well-shaded streets and abundant private gardens and public parks, is well adapted for functions of this sort. The inhabitants seem remarkably genuine and friendly, every man or woman on the street cars being ready with offers of assistance.

The large grounds of Queen's Park, where stand the buildings of the university in which the meetings were all held, are of unusual beauty, and the still, moist heat was evidently welcome to the fine trees and rich, well-kept grass. On a fine, large field, behind the Administration building, one could see the national game of cricket and the members of this club, as well as those of the Toronto Yacht Club, contributed their full share towards the entertainment of the doctors.

The meetings were not rich in announcements of new discoveries, but there were some notable addresses, and many signs of good work done. Of the former sort the most noteworthy was Sir James Barr's address on the Circulation, and, best of all, Sir Victor Horsley's on the Technique of Cerebral Surgery, giving splendid evidence of long continued, patient labor, inspired and guided by intelligent purpose. During this address every seat in the great hall was taken, and the modest, clear, impressive lecture was listened to with close attention. It was hard, indeed impossible, to carry away an unshaken faith in ether as the only anesthetic, after hearing this record of careful experiments and experience with chloroform, and of the means taken to minimize its dangers. With equal care every important point in intracranial surgery was taken up. Surely every prominent hospital should have some surgeon on its staff to whom abundant chance is given to fit himself for this important service; to whom the patients can intrust their heads with confidence that their contents will not be needlessly endangered at his hands.

Grouped around the chief speakers, both on the first day, when Dr. Reeve, the president elect, gave his address, and, later, during that of Sir James Barr, sat a group of men whose names and faces more or less strongly touched the chords of memory. It was pleasant to see among them the sturdy figure of Sir William Broadbent, looking a little older, but bearing himself with the spirit, confidence and vivacity of a true Englishman. The far East was represented by Dr. Bardi, of Bombay, in his loose, white and graceful costume, and Dr. Rama Rao, of Madras. It was understood that the endorsement of the Association was being sought for an effort on the part of the East Indian doctors to secure a more complete equality with their English colleagues. At a later meeting, where the question of food was taken up, Dr. Rema Rao told how well his countrymen got on with a rigidly vegetarian diet. Dr. Jane Ruthven, delegate from Johannesburg, in college cap and gown received a generous share of clapping, and likewise the president of our national association, Dr. W. J. Mayo, of Rochester. Professor Sherrington, well known to all lovers of physiology, Sir Clifford Allbutt, Professor Aschoff, of Freiburg and Dr. Lapicque, of the Sorbonne, were among the many notables, of whom fourteen later received degrees of LL.D. from the Senate of Toronto University, at a special convocation for this purpose.

As usual, it was difficult for one person, not possessed of double consciousness, to gain a knowledge of what was going on in various sections at the same moment and part of this report is, therefore, given from hearsay. One important discussion was held on Food and Diet, in which Professor Chittenden was the chief speaker, giving again an account of the experiments, interestingly reported in Boston about two years since. Drs. Halliburton and Hutchinson, of London, rather upheld the so-called "common sense" opinion, but, after all, the chief impression left upon the mind was that man's powers of adaptation are singularly large. Another discussion, on Arteriosclerosis, opened by Professor Welch, was from the anatomical side of striking interest, and that on Heart-block was also good, even though not conclusive. In the medical section, Dr. Simon Flexner told of the present state of his most important and very promising search for an immunizing serum, to be used in the treatment of cerebrospinal meningitis. His clear, fluent statement rehearsed in twenty minutes the labor of many years. On the same day and at the same section, Dr. F. J. Smith advocated a liberal and even solid diet for typhoid fever patients, rejecting no ordinary food so long as irritating particles were excluded. Much of his doctrine was supported by the chairman, Sir Thomas Barlow, and other members. Dr. W. G. Spiller, of Philadelphia, at this same meeting, reported a unique case of syringomyelia, with cavity formation extended far upwards into the hemisphere of the brain.

Excellent papers were read in the physiological section, on the physiology of the nervous system. One of them, by Sir Victor Horsley, gave the result of five years' work on the Functions of the Cerebellum, in the course of which he described and showed a piece of apparatus capable of such accurate and uniform adjustment that any desired spot, however far beneath the surface of the brain, could be reached and stimulated. The cerebellar cortex, he declared, was surely not analogous to the cerebral cortex, and the organ, as a whole, was a purely sensory structure, designed almost exclusively to subserve the function of equilibrium by regulating the position of the head and eyes.

At the pediatric section a morning was devoted to discussion of the newly differentiated affections Hypertrophy and Stenosis of the Pylorus, of which about one hundred undoubted cases have now accumulated. Dr. Cantley and Mr. Stiles, both of Edinboro, taking up respectively the medical and surgical aspects, showed specimens and described cases in which a successful operation had been performed. The work of our Drs. Scudder and Tobin was recognized. The diagnosis of the affection is not always easy, as a temporary but sometimes distinct spasm of the pylorus gives similar symptoms, and this fact is generally held to account for the belief held by some that even well-marked cases may be cured by time and medicine.

The communications to which I have referred could be matched by others quite as notable, but all of them together could but faintly indicate the potential activity of the two thousand men there gathered. Of this number our own states contributed a quota of excellent size and merit.

Truly yours,
James J. Putnam, M.D

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RECORD OF MORTALITY

For the Week ending Saturday, August 18, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,481	629	Quincy	10	5
Chicago	531	228	Waltham	5	1
Philadelphia	498	222	Gloucester	12	3
St. Louis	—	—	Pittsfield	5	1
Baltimore	197	68	Brookline	5	1
Cleveland	—	—	North Adams	9	4
Buffalo	—	—	Chicopee	7	6
Pittsburg	—	—	Northampton	8	1
Cincinnati	—	—	Medford	2	1
Milwaukee	—	—	Beverly	4	2
Washington	—	—	Hyde Park	8	8
Providence	72	29	Newburyport	3	—
Boston	228	106	Leominster	—	—
Worcester	60	33	Melrose	1	1
Fall River	—	—	Woburn	8	3
Cambridge	21	9	Marlborough	3	1
Lowell	38	20	Westfield	—	—
Lynn	15	5	Peabody	—	—
New Bedford	26	14	Revere	4	1
Springfield	17	5	Clinton	2	0
Lawrence	29	16	Attleboro	—	—
Somerville	18	7	Adams	4	4
Holyoke	—	—	Gardner	—	—
Brockton	7	2	Milford	8	2
Malden	11	4	Weymouth	—	—
Salem	18	6	Framingham	1	1
Chelsea	15	1	Watertown	2	2
Haverhill	5	1	Plymouth	—	—
Newton	7	1	Southbridge	1	1
Fitchburg	13	11	Wakefield	6	—
Taunton	15	5	Webster	—	—
Everett	7	2			

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CHANGES IN THE MEDICAL CORPS, U. S. NAVY FOR THE WEEK ENDING AUGUST 25, 1906.

M. S. Elliott, surgeon. Detached from the "Florida" and ordered to the "St. Louis."

J. H. Iden, passed assistant surgeon. To the Florida.

T. N. Pease, assistant surgeon. Resignation as an assistant surgeon in the Navy accepted to take effect August 21, 1906.

A. McK. Jones, acting assistant surgeon. To the Naval Hospital, Norfolk, Va.

M. C. Baker, acting assistant surgeon. To the Naval Hospital, Newport, R. I.

R. I. Longabaugh, acting assistant surgeon. Ordered to Naval Hospital, Mare Island, California.

RECENT DEATH.

Dr. Austin Flint Morris, of New York, died at his country home near Belvidere, N. J., on August 22, at the age of thirty-eight. He was a son of Dr. Theodore Morris of Belvidere, who survives him.

Address.

A CONTRIBUTION TO THE CHEMISTRY OF THE BACTERIAL CELL AND A STUDY OF THE EFFECTS OF SOME OF THE SPLIT PRODUCTS ON ANIMALS.

BY VICTOR C. VAUGHAN, M.D., ANN ARBOR, MICH.

(Continued from No. 9, p. 222.)

Part II. — The Bacterial Cell. — Continued.

The Action of the Colon Bacillus and its Poisonous Group on Animals. — It is interesting to study the effects of the living colon bacillus, the dead bacterial substance and the soluble poison split off from the bacterial cell on animals.

We have used a colon bacillus 1 cc. of a twelve-hour or older culture of which has invariably killed guinea pigs, when injected intraperitoneally within twenty-four hours. When only 1 cc. is given the animal shows no effects for from ten to twelve hours; when a larger quantity is given the symptoms appear earlier. This period of incubation represents the time necessary for the bacillus to multiply and be destroyed or broken up sufficiently to liberate enough of the poison to induce observable effects on the animal. In reality this is the critical period of the infection and the result depends upon whether or not all the bacteria are destroyed before they have multiplied sufficiently to furnish a fatal dose of the poison. "It is during this period that individual resistance and acquired immunity are important factors acting by causing increased bacteriolysis and the destruction of all germs before a fatal dose of poison has been set free. During this time the temperature of the animal may rise to a greater or less extent or may remain stationary; the animal remains active, eats; its coat is not roughened and it appears in all respects as well as a normal animal. At the end of this period, however, the appearance changes. The animal becomes less active. It remains in one corner of its cage; its coat becomes roughened; it hangs its head and apparently enters into a state of stupor. At the same time the rectal temperature begins to fall abruptly, as can be seen from a study of Chart I.

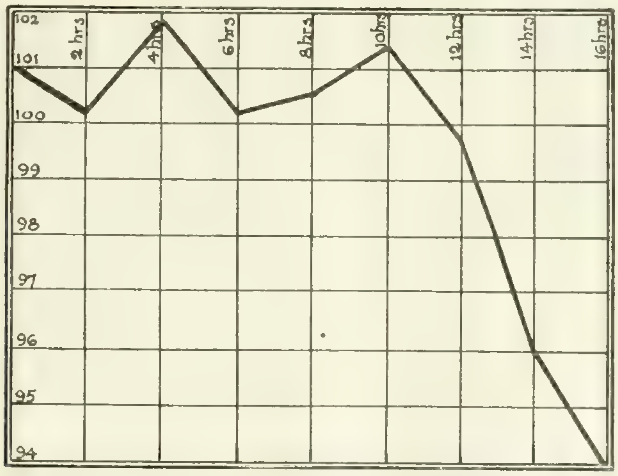

Chart 1. Temperature curve of guinea pig after inoculation with 1 cc., sixteen-hour bouillon culture of the colon bacillus. Death occurred twenty hours after inoculation.

"Indeed, this fall of body temperature is often the first marked symptom, and when occurring to a marked degree it is invariably a bad omen. The body temperature will often fall from 101° F. to 94° F. or even lower within from two to four hours, and this fall is progressive and continuous until the animal's death, immediately preceding which a temperature as low as 87° F. or 86° F. is not uncommon. At the same time the animal shows signs of the most marked peritoneal inflammation, as is evidenced by rigidity and spasm of the abdominal muscles on pressure. At autopsy, the only gross lesion present is a marked hemorrhagic peritonitis with a large amount of bloody fluid containing intact red corpuscles and leucocytes in the peritoneal cavity. The parietal and visceral peritoneum are studded with minute punctiform hemorrhages. Hemorrhage is an especially prominent feature in the great omentum, and is present to a less marked degree in the mesentery."

With the dead bacterial substance, or crude toxin as I have called it, the symptoms in the animal and the post-mortem findings are exactly the same as when the living culture is used. The only difference is in the period of incubation. Of course, the final issue when the dead germ is used depends upon the amount injected, since there is no possibility for increase in the poison after injection. The animal remains apparently well for about four hours and then its temperature begins to fall abruptly as is shown in Chart II, in which case the dose given was not sufficient to cause death.

When the "crude soluble toxin" is administered the period of incubation and the time necessary for the splitting up of the cellular substance are both done away with and the fall of temperature begins within fifteen or twenty minutes as is shown in Chart III. If the dose be a fatal one the fall continues until death; if it be less, the first indication of improvement is an upward move in the temperature.

The hemorrhagic peritonitis induced by both the living and the dead bacterial cells is wholly wanting when death results from the soluble poison. This seems to me quite interesting and I offer the following explanation: This inflammatory condition manifesting itself in a severe and extensive hemorrhagic peritonitis is not due to any activity on the part of the living bacillus, because, as we have seen, it is just as marked when the unbroken dead germ is thrown into the peritoneal cavity as it is when a living culture is employed. For the same reason I must conclude that this inflammatory condition is not caused by, nor is it even connected with, the growth and multiplication of the invading micro-organism, but it is a result of the disintegration and destruction of the bacteria. It is, in my opinion, due to the chemotatic force acting between the constituents of the bacterial cells and constituents of the cells of the animal body, and this force is of sufficient intensity to break up both the animal and the bacterial cells. In other words, I believe that bacterial inflammation is essentially a chemical process or is due to the disruption of cell molecules through the chemical affinity between certain groups in the bacterial cell and certain groups in the cells of the animal. So long as the bacterial cells are alive the chemism that holds the living molecule together tends to resist this process of disintegration. I have attempted to investigate this point by placing the dead bacterial cell subtance in collodion sacs in the abdominal cavity of rabbits, but in every instance, in which this experiment has been made, the animals have died and after death a localized area of inflammation about the sac has been observed. This point, however, deserves more extended experimentation.

The soluble poison diffuses through collodion sacs and animal membranes, but it does so slowly and when many times the fatal dose, determined by intraperitoneal injection, is introduced into the stomach of a fasting rabbit, the animal does not die. This I suppose to be due to the slow absorption of the poison rather than to its destruction. When the dead bacterial cell substance is subjected to artificial gastric digestion there is no diminution of its toxicity, but the poison is apparently slowly destroyed by pancreatic digestion.

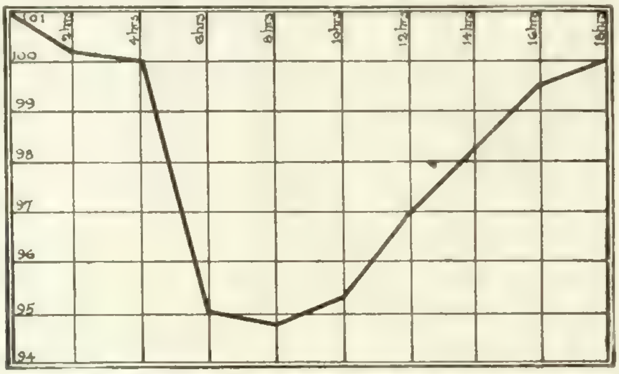

Chart II. Temperature curve of guinea pig after intraperitoneal injection of non fatal dose of crude bacterial cell substance

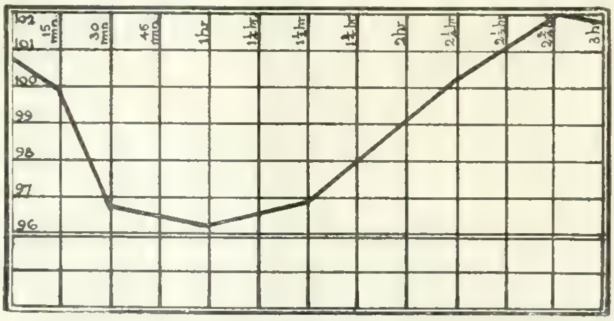

Chart III. Temperature curve of guinea pig treated with 45 mg. of the soluble poison intraperitoneally.

The soluble poison of the bacterial cell apparently kills by its effect upon the respiratory center. The heart continues to beat normally for some minutes after respiration ceases. In this respect the bacterial poison bears a close resemblance to neurin. The quantity of the soluble poison necessary to kill a guinea pig depends upon the extent to which purification of the poison has been carried. Usually it contains considerable sodium chloride, and this can be removed only by repeated evaporation and re-solution in absolute alcohol. The most potent poison that we have obtained killed guinea pigs in doses of 8 mg. given intraperitoneally, while the poison with which we have made most of our experiments required 60 mg. The fatal dose intravenously is about one sixth, and that required when given subcutaneously is about twice the quantity needed intraperitoneally.

Our method of extracting the active poison from the bacterial cell is by no means satisfactory, and much of the poison is destroyed in the process. For instance, a bacterial cell substance 5 mg. of which will kill a guinea pig yields less than one third of its weight of this " crude soluble toxin," and when the best results are reached not less than 8 mg. of this kills guinea pigs. I am of the opinion that the poison exists in the bacterial cell as a polymer, and much of this is hydrolized into an inert, or a relatively inactive, form by our process of extraction. If the bacterial cell could be broken up outside the body as it is within the body, we should have a larger yield of the active substance. We have tried various other methods of extraction, but up to the present time we have failed to improve upon that already described. We have detached from the cell substance of numerous toxicogenic bacteria bodies very similar in their physical and chemical properties and in their effects upon animals. The general clinical symptoms of many of the infectious diseases are markedly similar, and we distinguish one from the other more by the organs involved than from differences in the effects of the poison upon the individual. A typhoid septicemia can hardly be distinguished from one induced by a paracolon or paratyphoid organism, and, indeed, a general tuberculous septicemia bears so close a resemblance to typhoid that it may lead astray, for a time, at least, even a skilled diagnostician. A meningitis may be caused by any one of a number of micro-organisms, and no one can determine absolutely from the symptoms the exact name of the invading organism. Moreover, it has been shown by experiments in my laboratory that the molecules of egg albumen and of pepton contain poisonous groups very similar to, if not identical with, those of the cells of certain toxicogenic bacteria.

If I may be permitted to draw some inferences from these studies on bacterial endotoxins, I will state them as follows: The invading bacterium grows and multiplies. The tempo in which these processes proceed is variable, depending upon certain properties inherent in the infecting cell and at present quite unknown to us, and also depending upon the condition of the food material, in the animal, utilizable by the infecting cell and the resistance offered to its growth by the cells of the infected animal. All of these things, and possibly others as well, influence infection. From my own work using different strains of the same organism on individual animals of the same species, I have concluded that the virulence of the bacterium is the most important factor in determining the time and certainty of the death of the animal, and that the virulence of the bacterium is measured by the *tempo* with which it multiplies in the animal body. For the study of this question the colon bacillus is, in my experience, poorly suited, because with this organism there are not the wide variations in virulence that we find in certain other pathogenic bacteria. In my investigation of this subject I have employed different strains of the pneumococcus. Some of these are only feebly pathogenic or virulent, while others are most highly so. One strain requires at least 1 cc. of a culture twelve hours old to kill a guinea pig, while with another strain one-millionth of a cubic centimeter kills. But when two guinea pigs have died from the effects of these cultures, one from the feebly and the other from the highly virulent culture, so far as one can judge from a close inspection of the organs of the dead animal and the distribution and the number of bacteria present, the growth of the infecting cells has reached the same point in the two animals, and what is more scientifically exact when these two strains are grown artificially and the poison extracted from the cells, like weights of the purified cell substance yield like amounts of the poison. From this I conclude that differences in virulence between different strains of the same pathogenic organism depend upon the *tempo* or rate with which the organ multiplies in the animal body. This may not be true of all pathogenic bacteria, but it seems to be true of the pneumococcus. I have been surprised at the tenacity with which some strains of the pneumococcus hold their virulence through many generations of artificial cultures.

There is another point in favor of the idea that the virulence of the bacterial cell is dependent upon its rate of growth in the animal. The colon culture with which I have done much of my work varies but little, if at all, in virulence; 1 cc. of a culture twelve hours old invariably kills guinea pigs when injected intra-abdominally; I have a pneumococcus that kills, as I have already stated, in one millionth of a cubic centimeter, and yet 5 mg. of the dead bacterial cell substance of the colon bacillus kills, while it requires about 60 mg. of the dead bacterial cell substance of the pneumococcus to kill. It may be that the latter is not freed from foreign matter so thoroughly as the former, but this can hardly explain so wide a difference, and I must for the present at least hold that virulence in bacteria is largely due to rate of growth in the animals, and this is due to some form of energy in the bacterial cell, the nature of which is, at present, quite unknown.

I think it highly probable that the cells of the infecting organism feed upon the soluble, or, at least on the lifeless and unorganized constituents of the animal body, and that the lesions of the infectious diseases are not due directly to the multiplication of the invading bacteria, but to the poisons elaborated by these invaders. Prudden and others have shown that tubercular lesions may be induced by the injection of dead tubercle bacilli, and we have seen that the hemorrhagic peritonitis caused by the injection of the crude colon toxin is undistinguishable from that found after death from the living bacillus.

The pathogenic bacterium assimilates the nutritious constituents of the fluids of the animal body, builds them into its own tissue, converts them into substances foreign to the host, and finally when the bacterial cell goes to pieces either from spontaneous dissolution or through the aggressive action of some animal cell, these reconstructed chemical groups are set free and poison the animal, inducing lesions in various tissues, and, in many instances, so interrupting the vital functions as to cause death.

The Non-Toxic Residue of the Bacterial Cell. — When the cellular substance of the colon or typhoid bacillus has been thoroughly extracted with a 2% solution of caustic alkali in absolute alcohol about two thirds by weight of the material is left insoluble in alcohol and this we have designated as the " non-toxic residue " or simply as the " residue." This residue responds to all the proteid color reactions with the exception of the Millon test. This reaction, which is given in great perfection by the poisonous portion of the bacterial cell and which follows the poisonous part in all attempts to purify it, fails with the residue after purification by repeated solution in water and precipitation with alcohol. If a given residue responds to the Millon test it is proof that the poisonous part has not been wholly removed as can be demonstrated on animals. This is not, however, true of all bacteria; the non-poisonous residue of the tubercle bacillus does respond to the Millon test and I can positively assert its absence only in the colon and typhoid residues. This indicates a chemical relationship between these organisms and a chemical difference between them and the tubercle bacillus. Another interesting fact is that the Molisch reaction, which fails wholly with the poisonous portion of the colon and typhoid organisms, is given abundantly and promptly by their residues. Furthermore, the Millon test is positive not only with the poisonous portions of the colon and typhoid bacilli, but also with this portion of all the pathogenic bacteria, including the tubercle bacillus, which we have studied, as well as with the poisonous group of egg albumin and pepton. This indicates a chemical relationship between the poisonous portions of all these bodies. The fact that the toxic part of colon and typhoid bacilli gives the Millon reaction promptly and perfectly, while it fails absolutely to respond to Molisch test, and the residue of these bacilli give the Molisch test promptly and perfectly, while it fails in the Millon test, is strong chemical evidence that our method of splitting up these bacterial cells gives natural cleavage products. We can distinguish between these split products by chemical tests as well as by their effects upon animals. In neither case have we obtained bodies chemically pure, but it is a satisfaction to know that we have made a chemical separation.

From the fact that the toxic portion of the colon cell fails to give the Molisch test, while the residue responds to this reaction promptly, I infer that the carbohydrate group of the cell molecule is confined to the residue. There are other chemical differences between the poisonous and the non-poisonous portions of the colon bacillus. The former contains about 12% of nitrogen and the latter not more than 5%; while the poisonous part yields less than 1% of phosphorus and the non-poisonous part contains more than 3% of this element. The chemistry of both of these split products is now being investigated, and I hope to be able at some future time to make more exact statements on these points.

PART III. — THE PRODUCTION OF ACTIVE IMMUNITY WITH THE SPLIT PRODUCTS OF THE COLON BACILLUS.

Attempts to Establish Immunity with the Poisonous Portion. — The poisonous portion of the colon bacillus acts on animals so promptly and so powerfully that attempts to secure a tolerance to it frequently end in the death of the animal. If one rapidly increases the size of the successive doses this is certain to be the result. It may be found to be possible by combining the poison with an alkali and thus retarding its effect to secure better results, but this has not been systematically tried yet. Inasmuch as this subject has been discussed in some detail by one of my students in a recent paper [2] I will content myself with a brief condensation of his results. By proceeding carefully and gradually increasing the doses a point may be reached where the animal will bear treatment with from two to three times the amount that would surely kill an untreated animal. This indicates the development of either a slight degree of immunity or the establishment of a mild tolerance for the poison. Which of these actually results can be positively determined only after a satisfactory investigation concerning the production of an active antibody, and up to the present time our attempts along this line have not been followed by uniform results. Animals brought into this condition, whether it be one of increased tolerance or immunity, bear from two or four times the fatal quantity of living cultures of the colon bacillus. It is an interesting fact that animals that have had a single non-fatal dose of the poisonous portion are able to withstand twice the lethal dose of the living culture given the

[2] See bibliography at the close of this article.

next day, but this increased resistance induced by a single dose is transitory and has usually disappeared or at least is markedly diminished by the second or third day. However, the increased resistance induced by many successive doses is more lasting, manifesting itself for thirty days. The temperature curve of an animal previously treated with the soluble poison when inoculated with twice the fatal dose of the living culture is practically identical with that of an untreated animal when inoculated with less than a fatal amount of the living culture. This is shown in Chart IV.

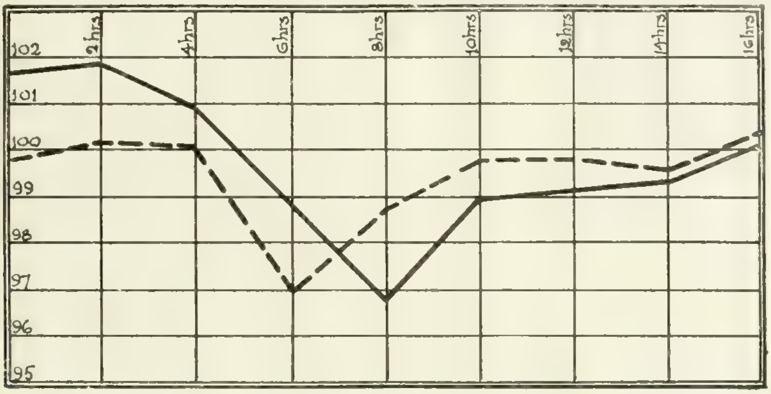

Chart IV. —— Curve of normal animal inoculated with non fatal dose of living germ.
- - - - - Curve of immune animal inoculated with living colon bacillus.

In both these animals the minimum temperature is reached within from six to eight hours, after which it gradually ascends to the normal. This similarity suggests that we have here a condition similar to that generally spoken of as natural immunity, and this suggestion is supported by the fact that this increased resistance to living cultures of the colon bacillus may be secured by previous treatments of the animal with the poisonous groups split off from egg albumin and pepton as well as with that from the colon bacillus itself. It is quite certain that the increased resistance to the living culture secured by treatment with the soluble poison is not specific. This point is an interesting one, especially in view of the well-known fact, attested by several independent investigators, that increased resistance to certain pathogenic bacteria may be secured by previous intra-abdominal injections of various proteid solutions.

(To be continued.)

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Original Articles.

THE CHILD AND THE PUBLIC SCHOOL CURRICULUM.

BY THOMAS F. HARRINGTON, M.D., LOWELL, MASS.

Signs are not wanting that thoughtful practical minds are turning to the principle *mens sana in corpore sano* as the keynote for our modern educational system. Nearly every country, almost every age, has tried, each in its own way, to rear an educational structure without recognizing this ancient truism. The disasters have been incalculable, even though recognized occasionally. Individuals in large numbers have been sacrificed, races have deteriorated, nations have retrogressed. Mental instability and physical degeneracy have vied with each other for the mastery of the individual, the group of individuals, and often of the whole nation. Crime, depravity and pauperism have resulted. Legislatures, in terror and alarm, enact laws which, in the majority of instances, aggravate the evils, or, at best, divert them into other channels. Most efforts, public and private, have been directed towards correcting the results rather than towards eliminating the cause. At no time has this effort been greater than it is to-day. New forces have been set in motion, wider interests have been created, broader paths entered, and greater philanthropy manifested. Future development lies in the organization of these forces, in the blending of these various interests, and above all in the recognition that mental development without its true physical equivalent is unstable.

The principle appears complex when we attempt to apply it to primary education. Pedagogues have given it scant notice and have contented themselves with developing in the child the greatest amount of mental strength. This they have considered to be their special duty. Psychologists and physicians both have constructed formulæ and rules based upon a careful study of a large number of children. The regret is that so few have worked along the *same lines.* We have a large number of average results based upon conditions at different ages of individuals or children in certain grades in school, but there are no data concerning the growth and development of the same child during its whole school life. It is the knowledge of the individual which should count if we hope to lessen his handicap, or if we are to judge wisely whether our scheme of education is capable of its fullest development in consideration of the physical condition of those upon whom the state forces it. There are no authentic facts by which pedagogues may be guided either in preventing race deterioration through abuse, or in avoiding race dwarfing through disuse of the mental capabilities of school children. Statistics and tables are numerous, and convince us that there is a correlative, if not a direct, dependent relationship between mental and physical growth; that age, sex, race, climate, nutrition, period of growth, season, environment, disease, etc., are all factors, in many cases the predominating factors, which decide the fate of the individual. When to these we add the materialistic tendencies of our times and of the home we must admit that there is a common ground upon which the pedagogue and the physician can unite in order that the idealistic tendency of modern education may be attained to a most practical degree without the sacrifice of individual health or national pride.

Psychology and physiology, separately and combined, have supplied so many data upon which modern educational forces depend that there can be no longer any question as to the physician's right in the premises. His position, however, is one of coöperation and counsel, leaving to the pedagogue the practical test of the value of any observations and deductions. The medical profession has based its conclusions as to the prevalence and extent of nervousness, over-pressure, physical defects and deformities among school children upon limited statistics gathered in the consulting room. That many pathological conditions among school children have their origin in the schoolroom, or in the school curriculum is now admitted generally; to charge all such defects to the *school life* is a serious error, as well as an injustice. The encouragement of such a belief among the people works much harm. The cause lies often in the *extra-school* life wholly. It may be beyond this even, and traceable only after the family history and home life have been investigated. The family physician is the proper person to give such facts their true weight. Modern conditions have tended to separate widely the school and the home. The branches taught in the schools to-day have so multiplied that the home has not been able to keep apace. Parents even when so inclined cannot enter actively into the work of their children because the work is so unfamiliar. When the parent is occupied in wage earning or domestic duties the interest in the school work becomes almost *nil*. From this passive participation comes a weakening of that alliance, parent and teacher, home and school, the foundation upon which our whole educational system rests. This is by far the greatest danger threatening to-day the public school system. Children recognize soon the lack of coöperation between paternal and educational authority, and widen the gap between the two until it proves a veritable pitfall to many. That the danger has been recognized is attested by the large number of agencies at work in the social-educational field. Some of these forces are antagonistic to the home and school alliance, others fall short of their full measure of usefulness, none of them furnish the desired connecting link between the home and the school. The child is a unified personality which cannot be separated into physical or psychical, moral or spiritual parts, each intrusted to different agencies. The whole development must be harmonious and under one head. In the inability or neglect of the natural guardian to fulfill his task it becomes the duty of the legal authority — the school — to discharge impartially, faithfully and conscientiously the obligation which by statute has been imposed upon it, namely, compulsory education. This it is not doing when it neglects the physical welfare of the child, or intrusts it to other agencies. The purpose of this paper is to point out some of the forces now at work and to suggest a plan of organization whereby the evils of the social and of the educational systems, in so far as they affect the growth and development of the child, may be greatly minimized. This I hope to do as a physician without trespassing into fields purely pedagogic.

The conditions existing in the present educational system in the United States may be divided into three classes: [1]

1. That in which it is assumed that all children are alike or sufficiently alike to march forward together in the same time, or in the same way.
2. That there are those who need more time.
3. That there are those mentally unfit and impossible to progress.

The first proposition is contradicted by such a mass of incontrovertible testimony that its consideration seems hardly necessary, yet it is so firmly fixed by tradition that its overthrow has never been accomplished. Whatever argument there may have been in 1636 for the introduction of a completed educational system has long since disappeared. The repeated attempts to transplant a homogeneous system and fit it to our heterogeneous population and interests naturally resulted in failure. Educational systems are indigenous, and cannot be imported in full bloom, nor has there been fruit sufficiently attractive to warrant the experiment even if it was possible. Here are a few facts concerning the results of different methods when applied to a school population more or less homogeneous.[2] In Copenhagen 18% (in 3,141 boys) were sickly on entering school. This percentage rose to 30 after two years of school life, and reached 40% at puberty. Among 1,211 girls in the same schools the sickness increased from 12% to 32% during the first three years of school life, and during the period from twelve to sixteen years the ill outnumbered the well by 10%. Dr. Pilger says that the youth of Germany have degenerated mentally, morally and physically; that one fourth of the number of pupils are physically below par; that nervousness increases from 10% in the lower grades to 60% in the higher grades. The Danish Government Commission found that 29% of boys and 41% of girls are sickly; the Swedish Commission that the per cent of illness was 5 in the first school year and 36 in the second; in the fourth school year it was 40%. The curve of sickness rose to 65% in the thirteenth year (age). At Moscow the per cent of illness at the different ages was, 58 at ten years, 51 at eleven years, 100 at twelve years, 61 at thirteen years and 57 at fourteen years. Combe's investigations at Lausanne are more conclusive even. He found:

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[1] Sixty-ninth Annual Report, Massachusetts Board of Education, 1904 05.

[2] Statistics from Adolescence by G. Stanley Hall, Ph.D., LL.D., vol. i, pp. 243, *et seq.*

Age,	8	9	10	11	12	13	14
Boys, per cent ill,	64	43	42	40	33	29	34
Girls, per cent ill,	88	75	60	66	68	61	39

With these statistics in mind, and observing the ceaseless agitation upon school reform which dominates all spheres of society in Germany to-day we may safely conclude that there is little to be gained in adopting for home use any system now in vogue in Europe.

There are no comprehensive data as to the conditions in our American schools. We may, however, gain some information by a study of the kindergartens, the latest "system" transported to this country. Since 1873 these kindergarten classes have grown from 42 with 73 teachers and 1,252 pupils to (1902) 3,244 classes, 5,935 teachers and 205,432 pupils, in 289 different cities. It is claimed[3] that children under six years of age, who have not had a kindergarten training, are unfit to enter the first primary grade, also that children entering school under five years, three months of age, without kindergarten training failed to the number of 60% to gain promotion at the end of the first year in the primary school; while only 35% of those who had kindergarten work failed in this promotion. Among children six years and over the failures of promotion at the end of the first primary years were 21% for non-kindergartners and 10% for kindergartners. Nothing is offered to show how the physical condition of the two groups compared, the effect of confinement in school rooms with at least restricted benefits of pure air, of enforced freedom from muscular activity, and of the imposed mental effort. Neither is it known whether children come to kindergarten already defective or mentally unfit for systematic school-play even. We know that the age at which children enter kindergarten is the period of the most rapid increase in brain weight, as well as the period when second dentition is an irritating element of growth. The balance between exhaustion and fatigue is imperceptible and easily upset. It is a period requiring the closest attention to the physical condition of the individual child, a serious responsibility for a teacher to assume. The startling statistics upon eye defects furnished by medical inspection, the wrinkled, contracted brows of school children to-day, the distorted ankles, curved spines and incipient tuberculosis noted among children in the early grades of school life make a close study of kindergarten conditions a necessary step in building an American educational system.

During the succeeding nine years following kindergarten the child is put through a process of mental development which is so antagonistic to and in direct violation of established physiological facts that it may be safely said that any child who has maintained his physical and mental equilibrium of maximum relative growth has done so in spite of the educational system rather than by means of it. The question is one of *medical supervision* rather than of *overcrowded curriculum.* It is not a weaker curriculum which is needed as much as it is a fitting of the present curriculum to the physiological development of the individual. Such a fitting would react so favorably upon the individual and group of individuals that the average physical and mental status would be greatly raised.

The greatest barrier to this progress is the system *of school grading.* It needs no argument to prove that children are mentally and physically unequal, nor that it is impossible to arrange a school program which will turn out all pupils at an equal stage of development. Any such program must fall short of bringing out the best there is in bright pupils, and at the same time it drives the slower pupils forward at a pace often disastrous to genuine progress. Such classing is artificial and has no foundation in nature. Neither can children be graded according to their ages. More than 40% of children in primary grades are beyond the age considered normal for those grades, and from 20% to 24% in the grammar school are over the maximum age.[4] Grading has been carried out in accordance with mental traits and upon an intellectual basis without regard to the physical growth or capacity of the individual child. Growth and development are not the same thing, nor equivalent even. The *brain* has practically completed its *growth* at seven years, the *development* has then scarcely begun. That the weight of the brain has little to guide us as an index of its development is a matter of common observation in pathology. There is, however, one estimate which is fairly indicative of health and mental development, namely, the ratio between the weight and the height of the individual.

There is a constant struggle of the various organs and tissues in the body for available nutrition, and the result if within certain limits and in right proportions is an harmonious whole, a well-balanced physical and mental being. If, however, and this is too often the rule, one part develops at the expense of the other, the weaker grows more weak and the stronger more strong until we get all degrees of mental development from the idiot to the genius. It is an axiom of biology that each individual organ has a particular size varying with the individual being, and it is constantly striving to attain that size, — anything beyond or less is not natural. True education consists in giving the individual those opportunities which will accomplish this result best, not by driving and forcing, but rather by leading and inspiring, and keeping the track clear of obstruction.

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[3] Supt. H. B. Hervey, Malden, Massachusetts Report Commission of Education, 1903.

[4] C. W. Eliot: Educational Reform.

Investigation and research have established certain fundamental truths bearing upon this question which have their fullest application as a basis of rational educational methods. Prof. William T. Porter showed years ago (1893) that there is a constant parallelism between physical superiority and mental capacity, and while the rule may have notable exceptions it may be stated that a person is more likely to reach his highest mental development only when he reaches the physical growth and development which nature had marked out for him. This does not necessarily imply that small[5] or weak men are always less efficient mentally than are large men, but many names might be mentioned from ancient and modern times showing that leaders among men have most often been those who possessed great physical strength. This physical development must be physiological, *i. e.*, it must be kept well within the limits of the physiological range of the endurance and capacity of the parts involved. If this be true there is an accompanying increase of height and weight and mental development. As such physical development has an educational value. Its abuse is the rule to-day in the so-called school athletics, football, basket ball, etc. In the reform already started much depends upon the coöperation of the physician. Its proper adjustment rather than its complete abolition is the desire of the most ardent reformers. To restrict the amount of physical exercise too rigidly would be an injury more serious than the present greater evil. Physical education is one of the greatest agents in preventive medicine, but it must be free play not forced training; exercise must be cautiously, wisely and carefully fitted to the individual less it enkindles into activity latent disease in bodies already weakened by poor food, bad air, over-stimulation or improper living. It should be the means whereby mental development is attained, not the end sought during school life.

Factors influencing growth in height and weight are many. It was found that the size of the recruits during the Civil War varied with the location from which they were selected. Prof. Henry P. Bowditch's pioneer work[6] in anthropometry of Boston school children offered a basis for educational guidance which, if developed, would be of incalculable help to-day in solving many vexed problems. Professor Bowditch found that the children of American born parents were taller and heavier at a given age than the children of foreign parentage. Whether race is the factor or whether the difference is due to social conditions might be solved readily to-day when the succeeding generation of the native and foreign born are attending the same schools, with the difference in their social conditions greatly minimized. That social conditions are important factors in influencing physical development is generally recognized. We know that increase of weight has a closer relation to health than increase of height, and that most acute diseases, as well as tuberculosis, are foreshadowed by a loss of weight. On the other hand, deprivation of the comforts of life has a greater tendency to diminish the stature than the weight of the child.[7] No systematic pedagogic study of school children can be of much value until a knowledge is gained of the growth, and of the relationship of this growth to the mental development in each individual child. This is not attempted in any school organization in this country or abroad. The recognition of the evil of underfeeding school children, and its relation to the problems of education calls for more space than this article allows. This evil influence must not be overlooked in any scheme for an educational system.

Nutrition alone, however, does not decide the height and weight of the individual. Sex and season are very important factors. Statistics based upon age periods are not reliable. There is no sexual difference in development up to eleven or twelve years. The marked differences, physical and mental, recognized so commonly after that period have a very important bearing upon the question of school curriculum and program. Physical growth is by rhythm, and has a direct bearing upon the susceptibility of the child to disease. The sex differences in relation to the growing periods are important in the question of coeducation in the public schools. The period from six to twelve years is a time of general decrease in the rate of growth; the periods from twelve to fifteen years in girls, and from twelve to seventeen years in boys are times of most rapid growth and of tumultuous changes. With a record of the child's age, height and weight, as well as illnesses, and his mental attainments, the physician would have data as clear as a clinical chart, to guide him in advising which course to pursue,— whether to force or check the mental development of each child. Biology as well as the observation of daily life point to conclusions that a differing method of education for the sexes at and beyond puberty gives the best results. The question of what teacher at this period is fully as important as the curriculum.

There is a seasonal fluctuation in a child's growth as is well recognized. The relative increase in weight is greatest from August to the middle of December, then it diminishes until the end of April, when it enters upon a period of little or no gain. This lasts until the end of July. The relative increase in height is greatest between March and August, least between August and November, and medium between the end of November and March. Thus it will be seen that the increase in weight comes in winter while the greatest increase in height occurs during the summer. It has been demonstrated that the increase in weight is three times greater in the period of maximum gain as in the middle period of growth, and that almost all the gain in the middle is lost in the minimum period. Notwithstanding these accepted data school programs are continued upon the same lines which were brought from England in 1636. The great strain of examinations, public exhibitions, etc., are all imposed in June at the time when the child is least able to stand the drain. Just as the child is about to enter upon his period of greatest gain in weight (August to December), he is further taxed by adding more mental strain, namely, the *opening* of the school term. It is a common experience that any new physical effort, such as bowling, riding, etc., when undertaken after a long rest, will cause "blocking," often to a degree bordering upon actual injury. Now when we set pupils to work under unfamiliar surroundings (new teachers, new studies, etc.), we cause "mental blocking," and any progress made is at a great cost. The plan which would be the least likely to injure the health of the child, and at the same time offer the greatest opportunity for mental improvement would be to allow the child to continue in September after his long rest in summer the studies and conditions familiar to him in June. At the same time remove the exhausting, nerve-racking examination tests of June and transfer them to January, when the height and weight curves are nearly parallel, and the body is in a natural state of exhilaration.

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[5] For statistics proving these conclusions see Report of United States Commission of Education, 1902, vol. i, pp. 1095, *et seq*

[6] Eighth Annual Report, Massachusetts Board of Health, 1877.

[7] Roberts and Bowditch.

Work, whether physical or mental, is done best when continued regularly within physiological limits. Constant interruption (vacations) necessitates spasmodic spurts in order to catch up. If the interruption is continued longer a loss of interest, a lack of effort, and then retrogression results. Hence that period of reviewing and striving after mechanical accuracy which school programs enforce. That is where much time is lost, as well as physical harm inflicted. Every physician sees cases of so-called overwork among school children, pure and simple cases of worry and fatigue produced by lack of interest. Such children are the bright ones in the school usually, whose mental activities demand more work, but who are held in line by grading, marking time until the duller ones catch up. Two remedies for these evils seem applicable; one, by introducing school work of a more manual or nature-study kind in summer, such as is now crowded into the winter term; second, by establishing an intermediate grade under superior teachers somewhere near the pubertal age, a grade to act as a clearing house for further advancement.

The first proposition (summer schools) could be carried out at summer colonies for the children who leave town, while those who stay at home would be immeasurably better in clean, cool, hygienic schools for a part of the day than roaming about on land and water as they do at present. The gain to those children whose school life is of the briefer sort would be very great.

By the second arrangement (the clearing-house), children could be pushed along as soon as they understood a given subject without regard to grading, until they reached the "clearing-house." Here it would be possible to estimate properly the real knowledge possessed by each pupil, and there would be a means also of learning whether the subjects were being properly taught, both in quantity and quality, — an unknown factor to-day. All children would have to pass through this test, and the stigma which backward children feel of being "kept back" would be greatly lessened. The fear which parents have concerning over-pressure would be eliminated, as the usual cause of this condition, the grading system, so far as the school life itself is concerned, would be removed. The separation of sexes could most appropriately be inaugurated at this stage. Latent epilepsy would be submerged, budding criminality blighted, precocity rightly directed, and physical defects recognized, most threatening dangers at puberty. The necessity for special classes for the defective, for parental schools and for juvenile courts would be greatly reduced.

All measures of relief thus far employed have been directed towards correcting defects rather than removing causes. These measures have differed with local conditions. In Massachusetts fourteen cities and towns have medical inspection of schools, and the legislature has passed an act which goes into effect Sept. 1, 1906, directing the school committee of every city and town to appoint one or more school physicians to the public schools within said city or town. The very hopeful element of this act is that the school inspection hereafter introduced is to be a part of the *school* department, and not under the *health* department as heretofore. Medical inspection of schools by physicians appointed by the health department has not been satisfactory. As might be expected the employees of the two departments, the teacher and the physician, have no definite idea of the dividing line in the jurisdiction of each. There has been no open clashing, but we may agree with the London Educational Board Committee's Report, that medical inspection "leaves something to be desired, and there is much opening for improvement."

The inspectors are agents of the health department at present, and as such are looked upon by the children's families as a medical police — persons to be avoided, not assisted. Wherever anything like effective work has been done it has been accomplished through the coöperation of nurses and not by medical inspection alone. In New York City there is a striking illustration of what may be accomplished when the health department and the educational department unite upon this question. In September, 1902, the medical inspectors under the department of *health* excluded 10,567 children. These children were advised to seek proper medical treatment. Many never delivered the message to their guardian, and the majority became involuntary truants. In September, 1903, the department added nurses to the medical inspection, and the result was that only 1,001 children were excluded. Each child was followed to his home, and a report was made by the nurse to the department whether the *cause* of the disease or defect was preventable, as well as whether the treatment of the existing disorder was carried out. Homes which resent interference by *health* officials welcome gladly *nurses as a part of the school* government. In many cities nurses have been supplied through private philanthropy. The objection to this is that these nurses are looked upon as almoners or missionaries of the society employing them. Neither have any right as such in our public schools.

While medical inspection in our schools has served a good purpose in awakening the public mind to the prevalence of contagious diseases as well as to physical defects among school children, it has *per se* accomplished very little in removing the causes of such misfortunes. Neither has it been of any service in deciding whether the order of studies now pursued in schools can be arranged so as to lessen fatigue to the child, nor has it pointed out the early signs of that fatigue now known to follow each other in a regular chronological order. The length of study period fitted to each grade; the question of one session or two sessions daily; the hours of sleep; the home worries, discouragements and labors; the social environment; all these questions concern problems which medical inspection has aided very little in solving. Candid medical inspectors say that the real inspection is done by the teacher, and that such cases only as she selects come to the inspector's notice. The Massachusetts Act says that " the state board of education . . . shall provide the pupils in the normal schools instruction and practice in the best methods of testing the sight and hearing of children." It would be of great value to both school and teacher if this normal school instruction included a fixed service, under a competent school nurse, among the children in their homes. It would give the student-teacher a view of child study and psychology such as no school course could offer, and its practical application in understanding and in developing each individual child would break up routinism and mass teaching. With such a corps of nurses and pupil-teachers, under school supervision, it would be a simple matter to construct a card system by which each child's height, weight, physical and mental development from his entrance into school life to its end would be visible at a glance. If the physician under whose supervision this branch of school work was placed could have a voice in the council and deliberations with the heads of the purely mental branches an educational body would be created such as does not exist to-day. Massachusetts, the American pioneer in educational methods, has taken the initiative in the act quoted above. Her educational interests are in the hands of energetic, conservative leaders. The future of the school in this country requires such statistics as I have proposed and an application of their teaching. The reciprocal relation of the school life and the home life cannot be established without them. Not until a uniform inquiry is carried out along these lines for a number of years can we hope to judge properly the question of physical and mental development; and not until we reach such judgment can the right influence of education on future generations be estimated.

OBSERVATION HOSPITALS OR WARDS FOR EARLY CASES OF MENTAL DISTURBANCE.

BY L. VERNON BRIGGS, M.D., BOSTON.

In the Boston Medical and Surgical Journal of June 21, I published my first article on an observation hospital, giving some reasons why there should be one in Boston, as well as in other large cities in this country and also statistics of two hospitals which have been in existence for some time. I now want to state what further progress is being made in this new movement of observation wards and hospitals, and also add the testimony of some of our greatest men in psychiatry who believe that there is a crying need in this direction. I do not expect to appear in print again on this subject for some time, but I feel too much cannot be said in favor of this movement, and I trust that those who are deeply interested in this subject and are now studying it will soon come to some satisfactory and successful understanding so that relief may be had, not two or three years hence, but this year, and I believe that concerted action of physicians from the different societies (not alone any one society), or committees chosen by the societies, can bring some plan to a successful termination more quickly than in any other way. We have much to learn from Scotland and Germany and perhaps it would be well to have a commission go to these countries and study what is being done there. Last autumn some commissioners came here from Great Britain to see what we were doing for the feeble minded. This spring in Great Britain there was a royal commission, sitting in April, taking evidence toward the better control and care of the " feeble minded." Dr. Macpherson says, " By that term is implied those weaklings in every community who are not usually regarded as certifiable, but who, nevertheless, are notoriously unable to take proper care of themselves and who are a nuisance to society at large." Dr. Macpherson gave evidence before this commission and recommended, among other things, the extension of training institutions for feeble minded children, an examination of all habitual offenders by an expert in mental diseases and the establishment of special colonies for those who are found on such examination to be mentally defective. So far as Scotland is concerned he thinks that such measures would produce an immense reformation, in the large towns, especially.

In Scotland the observation ward under Dr. J. Carswell, connected with the Glasgow Hospital, has proved such a grateful relief to many in the incipient stages of insanity that the physicians have been trying to induce the government to establish observation wards in different parts of Scotland. Under date of April 2, 1906, Dr. John Macpherson writes me: " The Imperial

Parliament is so congested with its business that it has been quite impossible to get them to do anything. Consequently, the local government board and the lunacy board[1] have taken the law into their own hands and without any statutory authority have drafted and imposed rules for the proper management of observation wards in poorhouses, such as they have in the Glasgow Hospital. They have instituted registers which must be kept and have limited the stay of all patients in the ward to a period of six weeks. The lunacy commissioners are to inspect regularly and to report to both boards." These boards are to be commended for their decisive action for the relief of that class of patients which would otherwise have to wait for commitment. They found no law forbidding such action as they have taken, and knowing that they were doing right and that they had the sense of the country behind them, they went ahead instead of waiting for the wheels of justice to turn, as they are turning here, very slowly.

Dr. Frederick Peterson, of New York, in a paper read before the Philadelphia County Medical Society at Philadelphia, Pa., Jan. 24, 1906, says that Philadelphia was the first city in the United States to preach the gospel of sickness for the insane, and the first to practise the doctrine. He says: "More than one hundred and fifty years ago Philadelphia established a hospital for the insane, which was a long step in advance of that period. Dr. Rush, of Philadelphia, was the Pinel of America. He abolished whipping as a remedial measure for insanity, and discarded the manacles and chains. Fifty years subsequent to the establishment of a hospital for mental disorders in Philadelphia, the first step was taken in the state of New York. In 1896, all the indigent insane in the state of New York had been placed under state care."

Now training schools for nurses are established in all New York State hospitals. A central pathologic institute or school of psychiatry is established at Ward's Island in the New York City asylums, to which the city physicians of the various hospitals of the state go for instruction in the latest scientific methods of study and treatment of the insane. This is under the direction of Dr. Adolph Meyer. A woman physician, a salaried dentist and an oculist are required at each hospital. Restraint by means of straps, etc., has been abandoned, and some wards have unbarred windows and doors; occupations for the patient have multiplied; special tuberculosis hospitals have been constructed, and in his paper Dr. Peterson urges that every great city should have emergency pavilions in connection with their hospitals to which patients supposed to be insane can be at once taken, not only for observation, custody and diagnosis, but for immediate treatment.

The Sheppard and Enoch Pratt Hospital for Mental and Nervous Diseases is what I should call an ideal psychopathic hospital. It seems to me to combine all that the foreign hospitals, or those now contemplated here, plan for so far as the patient is concerned. No chronic cases are taken, but only acute cases which are, persumably, curable. In the fourteenth annual report, the president states that, "It must constantly be borne in mind that Dr. Brush's definite purpose is to cure insanity, and in adhering to that attempt the resources must not be absorbed by chronic patients merely to be safely housed and comfortably cared for without hope of restoration." As is pointed out, "our doors are constantly open for cases of acute mental disturbances deemed by the staff probably curable." Dr. Edward N. Brush's report to the trustees for last year is as follows:

Remaining in the hospital Nov. 30, 1904,	105	
Admitted during the twelve months,	110	
		215
Left during the year:		
Recovered,	25	
Improved,	15	
Unimproved,	28	
Died,	7	
Not insane,	3	
		108
Under care November, 1905,		107

Dr. Brush says in this report that during the first five years 16% of mental cases treated came voluntarily, while during the year just closed 33% of the admissions were voluntary, one third of these having previously been patients in the hospital. He says: "The influence of a voluntary application for admission upon the patient is most beneficial. He realizes that he is not at the hospital under coercion, but that he has exercised the same right of election in the matter of treatment that a person calling in a general practitioner for any state of ill health does." He can, upon three days' notice, sever his connection with the institution, unless he has grown decidedly worse and requires to be protected. Only two such cases has the hospital had during the year among the voluntary patients. Dr. Brush points out the need for instruction in psychiatry, and asks what would be thought of a course in surgery in which the instruction was given by lectures with no demonstrations whatever; or of a series of talks upon pneumonia without a chance to see or examine the patient. He says few medical schools in this country pretend to give any teaching at all upon the subject, and a majority of those who do give no clinical instruction whatever. In consequence, the condition of the patient is not infrequently made worse by the administration of a sedative or narcotic drug at inexperienced hands, and he adds, "Not infrequently, too, the early, and to the experienced observer, obvious, symptoms of mental disturbance are wholly mistaken or overlooked, and the patient who needs rest and freedom from distraction is sent on a journey, and the one who needs careful watching, because of the almost certain appearance of suicidal ideas, permitted to commit self-destruction."

F. Macfie Campbell, M.D., Ch.B., in an article on "New York State and Psychiatric Teaching,"

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[1] Of which Dr. Macpherson is at the head.

June, 1905, says that in Great Britain, the question of the treatment of the insane is arousing considerable interest. It is being forced on the professional mind that it is not sufficient to clothe, house, feed, or even entertain the insane, but that medical responsibility goes still deeper. He says that while medical men have no difficulty in obtaining a special training in clinics organized to meet their needs, they find in Great Britain no psychiatric clinic where they may learn from a recognized teacher the special requirements of their work, especially if they are to be superintendents of insane hospitals. Whatever handicaps the physician means a loss to the patient; the insane patient is one whom we are bound to treat with special consideration, for he is no longer able to look after his own interests.

"This injustice to the insane is being felt by some of our medical schools, and in a short time, it is hoped the opportunities for study of mental diseases will be satisfactory. In Great Britain there are hopeful signs in the observation wards for the insane at the Eastern District Hospital, Glasgow. Edinburgh plans for a psychiatric clinic in the Royal Infirmary, and in the reception wards for the insane, which certain London hospitals propose to institute. In America, the University of Michigan has taken steps to open a psychiatric clinic. In New York State the initiative has been left by the university to the state, and the enlightened policy of the state in this respect ought to quicken our own feeling of responsibility."

About 1900, a movement for the establishment of a psychopathic ward in connection with the University of Michigan Hospital was started by Dr. William J. Herdman, professor of diseases of the mind and nervous system in the university. By an act of the legislature of 1901 an appropriation was granted for the erection of a building which was begun in 1903 and completed in 1905. In its plan and equipment it is essentially an observation hospital. An annual appropriation of $5,000 is authorized by the legislature to pay the salaries and the running expenses of the laboratory. It is a part of the university hospital. This fact gives opportunity for the study of mental diseases and it is also a teaching clinic. The ward was opened on Feb. 7, 1906, and is under the directorship of Dr. Albert M. Barrett, late of the Danvers Insane Hospital. The governing power of the institution is vested in a joint committee whose appointment rests with the university regents and the executive bodies of the various state asylums for the insane. The director is invested with the title of pathologist to the several asylums and professor of neuropathology in the medical department of the university. The hospital is especially designed and equipped for the study of acute cases of mental disturbance and has accommodations for forty patients, twenty of each sex. Arrangements are being made for hydrotherapeutic and electro-therapeutic treatments. The resident physician, Dr. George Milton Kline, is constantly in attendance. Patients may be admitted to the psychopathic ward in accordance with any of the following processes:

(1) In cases where application shall be made under the statute to send persons claimed to be insane to either of the asylums in the state of Michigan, the judge of probate, before whom said application is pending, may require the assistance of three competent and skilled physicians who shall investigate the condition of said person and report the same to the judge of probate in writing and if said judge of probate upon investigation ascertains that there are present in the condition of the patient such features as render detention in a psychopathic hospital for a brief period advisable as a precautionary or curative measure, or if from such investigation said judge of probate shall be of the opinion that the case requires the services of specialists in the treatment of diseases other than those of the nervous system, he shall pass an order directing that such patient shall be transported for treatment to the psychopathic ward of the hospital of the University of Michigan. If the patient shall continue insane after any such special treatment he may be removed to and confined in such asylum of the State of Michigan as the probate judge may decree in his order of committal to the psychopathic ward.

(2) In case the superintendent of either of the asylums for the insane shall be oı the opinion that the condition of mind of any person confined in such asylum is such that it might be advisable that the patient be sent to the psychopathic ward he shall cause such person to be conveyed to the psychopathic ward. If such patient shall be restored to sanity while in the said ward he shall be discharged, but in case such patient shall be found incurable, the superintendent of the university hospital shall cause said person to be returned to the asylum from which said person was received, the charges for the care, maintenance and transportation to be paid by the respective counties or by the state, as the patient may be a county or a state charge.

(3) Persons may commit themselves as voluntary patients under the same provisions as apply to such commitments to the state asylums.

Dr. Edward Cowles, in the *American Journal of Insanity*, for October, 1905, says: "Psychiatry belongs to general medicine, and mental disease, like bodily disease, is not an entity nor an agency but the result of normal function acting under abnormal conditions."

At the International Medical Congress, held at Lisbon this year, 1906, Dr. Daniel R. Brower read a paper on "The Treatment of Acute Insanity in a General Hospital," in which he said that he began thirty years ago the treatment of selected cases of acute insanity in general hospitals and that he has never been without such cases since. The results have been such that he urges this plan on the profession generally. As regards treatment he says, "Intestinal fermentation is frequently present and there are few patients who do not need colonic flushings with normal saline solution and the internal use of intestinal antiseptics."

On July 14, 1905, a deputation of medical men of the Province of Ontario, who believed that a certain class of cases often immediately adjudged insane, and confined in so-called insane asylums would be far better cared for in mental wards in general hospitals, waited on the Premier, the Honorable Mr. Whitney. The deputation comprised members of both the Toronto Clinical Society and the Ontario Medical Association, and because it was a large one, the proof is apparent that the profession of this province would like Dr. Mosher's Hospital at Albany, N. Y., duplicated. Dr. D. Campbell Meyers was the chief spokesman. The Premier promised them that the subject would have the immediate and careful consideration of his government. On April 3, 1906, J. N. E. Brown, the superintendent of the Toronto General Hospital, writes me that "the Provincial Government has placed at the disposal of the trustees of this hospital, the sum of $5,000 for the fitting up of a portion of the hospital for the treatment of functional nervous diseases, neurasthenia and the like. The wards have just been completed, and are now being furnished but will not be ready for a week or ten days yet." On June 29, 1906, he writes me as follows: "Our nervous wards have been open for several weeks. We have twelve beds, all of which are filled, and could readily, I think, keep double that many beds occupied." These wards are in charge of Dr. Meyers.

On June 28, 1906, Dr. Goldwater, of the Mt. Sinai Hospital, New York City, wrote me: "It is only a question of time when the kind of institution which you are agitating must be represented among the hospitals of New York. I think the examining physicians of the general hospitals of this city will bear me out in the statement that psychopathic hospitals are among the most pressing hospital needs of the metropolitan district."

On July 17, 1905 the following letter was sent to the editor of the *London Times:*

To the Editor of the *Times:*

Sir: The Lunacy Bill which has been introduced into the House of Commons by the attorney general, and now awaits second reading is a measure similar to that which has already twice passed the House of Lords. Its chief object is to provide milder treatment for early and recoverable insanity than is involved in the present compulsory certification. We venture to make an earnest appeal to the Prime Minister to afford the measure the small facilities which it needs, that the goverment and the House of Commons may not again be open to the charge of indifference to the urgent needs of this class of sufferers.

Yours,

W. S. Church,
W. R. Gowers,
George H. Savage,
David Ferrier,
W. H. Broadbent.

Dr. John Macpherson in answer to inquiry about the above bill writes me as follows: "The London County Bill in the last House of Commons suffered the fate of many other bills during the expiring days of the late administration and was sacrificed in the general massacre of the innocents."

Maurice Craig, physician for mental diseases at Guy's Hospital, London, and senior assistant to the Bethlem Royal Hospital, London, states in his "Psychological Medicine" on the treatment of mental diseases, that mental disease, like many other maladies, must be treated in its early stages if complete recovery is to be obtained. He says: "Who would permit a case of phthisis to drift until the lungs had become riddled with cavities? But if from whatever cause such was the plight of the patient, the only treatment might well consist in attending to his board and lodging, and from time to time relieving urgent or distressing symptoms. One of the first points to be decided upon is where shall the patient be treated. In almost every case it is necessary to remove him from his home surroundings and place him in the charge of strangers. There are many courses which may be taken, the financial position of the patient being, as a rule, the determining factor. If the means are small, alternatives are correspondingly few, and in most instances the patient must be sent to some large private asylum, or to some hospital for mental diseases. As the law at present stands in England, anyone who takes into his house a person of unsound mind, who is certifiably insane, and yet who is not under certificates, renders himself liable to prosecution and a fine of £50."

Robert Jones, M.D., superintendent of Claybury near London, says in an article on the medical treatment of insanity, in the British *Medical Journal* of April 22, 1905, that "in the acute stage of no disease is care and attention more necessary, nor more expensive, nor is there more hope of cure, than in the early stages of insanity. It is essential to prevent exhaustion and to maintain the patient's strength by giving unirritating foods, easy of digestion, frequently and in small quantities; sleep is necessary, but sedatives and not hypnotics should be given."

Sir John Sibbald, M.D., in an article on the treatment of incipient mental disorders and its clinical teaching in the wards of general hospitals, published in the *Journal of Mental Science*, April, 1902, says in the beginning of his paper that he hopes to make it clear both that the present opportunities for clinical instruction in insanity are singularly inadequate, and that the wards proposed would furnish the means of making such instruction efficient and complete. He says: "It is proper to put on record that the raising of the question at present is entirely due to my friend, Dr. John Macpherson, one of his Majesty's commissioners in lunacy, and, if, as I hope, the present discussion takes effect in the establishment of the wards we desire, it is to him that our gratitude will be due."

The first who effectually awakened an interest in the subject was Griesinger, who for some years previous to his appointment in 1865, as professor of nervous and mental diseases in the University of Berlin, had insisted on the importance of providing efficiently for such teaching in every medical school, and who induced the authorities of the Royal Charité, the great general hospital at Berlin, to provide for clinical teaching both in neuropathy and psychopathy by giving him wards illustrative of each of these subjects.

The late Professor Laycock recognized so clearly this need that he suggested, in 1869, that the managers of the Royal Infirmary should set apart wards to serve both for the treatment of mental disease and for the clinical instruction of medical students in insanity.

Sir Arthur Mitchell, in his Morison lectures in 1871, also advocated the establishment of such wards, and so far succeeded in the advocacy that plans were prepared for such wards among the original plans for the buildings of the present Royal Infirmary.

Sir John Batty Tuke, though he afterwards supported a proposal that a special hospital for the treatment of mental disease should be established in London, said in an article in the *Nineteenth Century* for April, 1889, that the ideal arrangement for teaching is a department for the treatment of insanity in connection with general hospitals. Continuing, he says that "as cases of mental disorder, as a rule, are excluded from the general hospitals, and the cases we have in view not having arrived at the stage which makes relegation to an asylum necessary or justifiable, it is, therefore, certain that a considerable number of patients are allowed to fall into incurable insanity who might have been, and indeed ought to have been, saved from that fate." He further says that the introduction of the proposed wards into the infirmary would also be an act of highest philanthropy, as tending to obliterate the line of demarkation which has been too long drawn between patients suffering from what are called bodily diseases and patients suffering from what are called mental diseases.

In speaking of the out-patient department, Sir John Sibbald, M.D., refers to Dr. J. Batty Tuke, Jr., who conducts the Edinburgh New Town Dispensary, also the out-patient department for mental ailments in successful operation under Dr. Rayner at St. Thomas's Hospital in London, and a similar department established by Dr. Bevin Lewis, in connection with the West Riding Asylum at Wakefield. He advises a residence of not more than six weeks and that there should be no compulsory detention, which would exclude many patients.

He says in a discussion of the arrangement of the wards: "It is also necessary to keep in view the trend of medical opinion as to the treatment of mental disorders in their early stages, and there can be no doubt that this opinion has been steadily moving more and more towards the adoption of methods more closely resembling those resorted to in the treatment of bodily disease. Another recent development has brought wards for mental diseases more in line with ordinary hospital wards than they formerly were; this is the introduction of nursing by women into the male wards of asylums. In regard to this, I shall content myself with reference to the example of the wards for mental diseases in the general hospital at Copenhagen, where the nursing staff is almost entirely female, and to the position in the matter in the Sterling District Asylum. In that asylum the chief officer on the male side under the medical staff is a lady superintendent. Out of a total of 350 male patients nearly a third are, during the daytime, entirely under the care of female nurses, and this third includes the great majority of the male patients suffering from acute forms of mental disorder; 67 of these male patients are under the care of female nurses both night and day.

"It must be kept in mind that it is in the initial stage of mental disorder, before it has reached the stage when the relegation of a patient to an asylum would be resorted to, that it is most important that medical treatment should be careful and skillful, because it is then that it can be most effective; it is then that under careful guidance the patient may most hopefully be placed in circumstances that will allow the restorative forces of his constitution to regain control; that toxic processes may best be checked, and that the exhausted brain cells may be stayed in their progress towards disorganization.

"It is true of mental diseases, more perhaps than of any other class of diseases, that the earliest stages are those in which both teachers and students can best obtain much of the information necessary for the study of the nature and the causation of the malady.

"I think it is a matter of common experience that the patients whose curative treatment receives the most careful and capable attention are those whose good fortune it has been to be treated in wards where teaching is practised, and that it is the physicians and surgeons engaged in teaching who have chiefly contributed to our knowledge of the nature and the treatment of disease. I think it only reasonable, therefore, to expect that the observation of the earlier stages of mental disease in clinical wards would contribute notably to advance our knowledge. The point I wish chiefly to emphasize is, that under the present arrangements, an important part of the instruction that the ordinary medical student should receive is omitted. He receives no direct clinical teaching as to the treatment of the incipient and the transitory phases of mental disease in their earliest stage, that is, before they have passed out of the hands of the general practitioner."

T. S. Clouston, M.D., in a discussion which he opened at the annual meeting of the Medical Psychological Association, Liverpool, July 25, 1902, on the "Possibility of Providing Suitable Means of Treatment for Incipient and Transient Mental Diseases in Our Great General Hospitals," said: "Does any adequate provision exist at present for the right treatment of the early stages of such diseases as have mental disorders for their chief symptoms, or for the slighter and more transient insanities, among the class who come to our general hospitals for advice and treatment? The answer must be 'no.' Our hospitals for the insane treat the developed cases in the best way known to modern science, but such cases as I have indicated cannot and should not be sent to them.

"In regard to mental disease, it is in its early and incipient stage that it is most curable; every case of mental disease has an early and incipient stage. During that stage it is not a case of technical legal insanity. It is a condition where you require to make the patients realize that there is something wrong with them. Dr. Mott has told us of the extreme importance from the purely scientific point of view of any form of bad brain habit. The rich can and do have means of treatment; the poor at present cannot. This does not apply to any other class of disease. Mental disease is the most pitiable of all. To allow such mental symptoms to run to such a degree of disturbance that they can be officially certified as technical insanity seems a cruel neglect as well as an expensive dereliction of duty on the part of society, for the man so afflicted ceases to be a producer and becomes incurable.

"Why should not an extension of the present asylum accommodation fulfill this purpose?

"The answer is that it cannot fully do so just because it is asylum accommodation, and, therefore, has attached to it the unfortunate and cruel prejudices and repulsions which would prevent patients from voluntarily taking advantage of it when they need it most and when it would do them most good. Many mental cases, too, are certifiable which should not be certified, and still more are not certifiable, and yet need definite treatment.

"What advantages would the present general hospitals have over asylums or any other mode of treatment?

"Firstly, anyone may go to seek advice at a hospital, or to be treated in one, without losing any of his self-respect, injuring his prospects in life, or going counter to any special prejudice in his mind. Secondly, the treatment of this class of disease — I attach enormous importance to this argument — would educate our poorer population, and, indeed, the whole population into entertaining the belief that mental disease is on all-fours with other classes of disease, and that it in no way implies shame or repulsion. If this education could take place to any degree, it would sweeten life to every family in which mental disease has occurred, and that would probably comprise every fourth or fifth family connection in the land Besides, it would diminish one of the most poignant terrors in the lives of those who have suffered from the disease or fear its occurrence. The absence of this prejudice and fear would of itself greatly aid recovery.

"In the Copenhagen General Hospital, where, since 1863, mental patients have been treated, the following result has occurred. Professor Pontoppidon, the professor of psychiatry there, says, 'The adding of the pavilion as an integral part of the hospital for general somatic diseases has influenced public opinion in modern and scientific directions, and has done away with much of the mysticism which, in public opinion, too often clings to mental disorder. Patients and relations, as well as doctors, seldom hesitate to make use of the insane ward of the Commune Hospital in the hope that the patient will soon recover, knowing that he will here be at once placed under rational treatment, which so often greatly improves the prognosis.' We cannot set aside these weighty words of a man who has already tried this particular mode of making provision for insanity. A great advance would be made toward removing the reproach of insanity by educating the public as to its true nature."

Continuing, Dr. Clouston says: "The cost of a psychiatric bed would not exceed by any considerable sum that of a medical bed, and would scarcely come up to the average of a surgical bed. It would not upset nor complicate the internal workings or general administration of the hospital.

"At Larbert, in Scotland, the male patients are nursed entirely by female staff.

"At Morningside, we started two hospitals in connection with the asylum, with female nurses in each, and these with open doors have been run for twenty years.

"Observation wards would need special staffs trained in or experienced in the treatment of mental diseases. There should be a time limit, as in all other general hospital cases. I have found that out of the ordinary certified patients 10% recover, and are discharged within six weeks; 20% within two months. A much larger number treated in the earlier stage for the milder form of disease would recover, and many could safely leave the hospital to complete their recovery at home. If you have broken the bad brain habit, if you have successfully contended by proper treatment with the worst symptoms, the patient may convalesce at home. It would be an enormous gain to our profession and, therefore, an equal gain to the public.

"We know that a great many hospitals in the old days provided for the treatment of mental cases; they failed because the worst cases were sent to them, and they had to treat unsuitable cases with the exceedingly limited means at their command, and with unscientific nursing.

"The ideal provision for treating mental diseases among the poor would in my judgment require four provisions. First, a mental ward in the hospital for incipient, transient and suitable cases. Second, a reception hospital for certifiable cases of an acute character situated near a large town, with plenty of nurses and plenty of medical attention. Third, an ordinary asylum for cases which run on month after month. Fourth, a boarding-out system for the really quiet and manageable cases, who could be restored in a modified degree to family life."

It is certainly safe to predict that within five years observation wards will be connected with every large general hospital in our cities, unless the cities provide psychopathic hospitals for the early cases. The trend of opinion is in this direction and there is a strong undercurrent working which cannot be turned back.

APPENDICOSTOMY AND CECOSTOMY FOR THE RELIEF OF CHRONIC DIARRHEA: REPORT OF NINE CASES.[*]

BY SAMUEL G. GANT, M.D., LL.D.,

President American Proctologic Society and Professor of Diseases of the Rectum and Anus, New York Post Graduate Medical School and Hospital, New York.

CHRONIC diarrhea is an affection encountered in all parts of the United States, more frequently, however, in the extreme south than in the north. The varieties of diarrhea are so numerous and its causes so varied that no attempt will be made to enumerate or describe all. It is generally conceded that diarrhea, in the vast majority of cases, is caused by pathologic conditions situated at some point along the alimentary canal. The opinion seems to prevail that the condition inducing chronic diarrhea is, in the majority of instances, located in the stomach or small intestines, sometimes in the colon, rarely in the sigmoid flexure or rectum.

Perhaps it is true, in most instances, that the original cause of the frequent evacuations is situated in the stomach or small intestine; be this as it may, it is the writer's opinion that in a large percentage of cases chronic diarrhea is directly traceable to disease in the colon, sigmoid rectum, or at the anus. That the exciting cause of the frequent stools is located at some point in the large intestine or rectum is a matter easily demonstrated by means of a proctoscopic or colonoscopic examination or by discontinuing internal medication and substituting a local treatment, which will be followed by rapid improvement if the diseased part of the bowel is reached. Certainly, the original or continuing cause of chronic diarrhea is found located in the lower bowel sufficiently often to warrant the assertion that in all of these cases the sigmoid and rectum should be thoroughly examined by means of the proctoscope or sigmoidoscope.

In some instances the pathologic conditions of the lower bowel inducing chronic diarrhea are the result of irritating discharges from disease higher up in the alimentary canal. The lesions in the colon, sigmoid and rectum thus produced not infrequently remain as an independent and continuing cause of the diarrhea long after the original ailment and consequent discharge which brought them about have been relieved or cured.

Chronic diarrhea is very common, its progress is insidious, and its importance and far-reaching effects are not infrequently lost sight of by the family physician. Unfortunately for this class of sufferers practitioners generally do not make a sufficient effort to determine the cause or causes of the frequent stools, consequently they fall into a routine practice in treating these cases, prescribing bismuth, opium, chalk, charcoal, mild astringents, intestinal antiseptics, etc., which serve *temporarily* to diminish the number and fluidity of the evacuations, but which do nothing, in many cases, toward a permanent eradication of the disease.

Chronic diarrhea is primarily the result of disease located in the colon, especially the sigmoid and rectum, very much more frequently than is supposed by the profession at large. The following are the pathologic conditions of the lower bowel which most frequently cause chronic diarrhea: carcinoma and other tumors within and without the bowel which obstruct its lumen; stricture, procidentia, invagination, polyps, fecal impaction; deviated coccyx, foreign bodies, colitis and ulceration. Of these the most common cause of the diarrhea is colitis, and the inflamed and ulcerated condition of the mucosa may be the result of a simple inflammation of the membrane, or it may be due to trauma, gonorrhea, syphilis, tuberculosis or amebic dysentery, the latter proving quite common in this country since our recent war with Spain.

It is not the purpose of the writer at this time to outline the treatment of the above-named diseases except that of colitis. The medical and surgical treatment of colitis has been given elsewhere[1] by the writer and will not be discussed further except in so far as it relates to appendicostomy and cecostomy. When diet, internal medication and irrigations have failed to arrest the progress of the disease it is time to resort to such surgical procedures as colostomy, cecostomy (valvular) and appendicostomy.

Mayo Robson, 1893, and Hale White, in 1895, reported cases of colitis cured by establishing an artificial anus in the colon, and advised this method of treatment in persistent cases. Colostomy for this purpose has not become popular, however, because of the universal objection to this operation owing to the frequent and involuntary escape of gas and feces, and further because of the difficulties and dangers of the operation necessary to close the opening after the colitis has been relieved.

Later, Gibson described his operation, "Valvular Cecostomy," which is preferable to colostomy. At the present writing, however, the operation known as appendicostomy, suggested by Weir and so named by Willy Meyer, is more popular than either colostomy or cecostomy.

The object of this paper is to give the personal experience of the writer in the treatment of nine cases of persistent ulcerative colitis and chronic diarrhea by means of appendicostomy or cecostomy. In eight of these cases the appendix was brought up, attached to the skin and opened in order to permit through-and-through irrigation. In the remaining case the cecum was opened and a catheter introduced, after the method of Gibson for the same purpose. The experience of the writer with these operations has been most gratifying, and he has no more hesitation in advising these procedures for the relief of ulcerative colitis than he would of advising appendectomy for the relief of appendicitis.

The operation of appendicostomy is comparatively simple, can be quickly performed and is no more dangerous than is the interval operation for appendicitis. In performing this operation the different operators vary the technique but little. In brief, the following is the technique as practised by the writer: The abdomen is opened by a short intermuscular or gridiron incision such as is made for appendectomy. The appendix is located, freed if adherent, brought outside the abdomen, opened and a probe inserted to make sure of its patency. If found to be too short, strictured or otherwise unsuitable, it should be removed and a cecostomy substituted. If, however, the appendix is sufficiently long and patent, it is ligated and cauterized. The cecum at its base is sutured to the abdominal wall and the parietal peritoneum, muscles and skin closed with plain catgut sutures. The appendix is anchored to the skin by one or two sutures and the wound covered with protective tissue and gauze held in place by adhesive plaster. In some cases the meso-appendix was left intact, while in others the artery was ligated and the peritoneum stripped off, but apparently neither method had any advantage over the other. Usually the part of the appendix external to the ligature sloughed about the fourth or fifth day, leaving the open stump projecting about one fourth of an inch above the skin.

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[*] Read before the American Proctologic Society, Boston, Mass., June 6, 1906.

[1] Gant: Diseases of the Rectum and Anus, third edition. T. A. Davis Company, Philadelphia, Pa.

The irrigations are begun immediately, using saline solution, ice water or solutions of boracic acid, potassium permanganate, carbolic acid, krameria, ichthyol, bichloride of mercury, or nitrate of silver.

In practically all cases the abdominal discomfort and frequent evacuations ceased immediately after the operation or after the first irrigation, and within a few days the stools became almost normal, containing but little blood or mucus. It appears to make but very little difference what irrigating fluid is employed, provided that it is used daily and in sufficient quantity to thoroughly cleanse the bowel.

The operation has not been followed in any case by serious shock or great discomfort and in only one case was there nausea, due in this instance to the inclusion of a portion of the cecum within the wound. Primary union occurred in all except two or three cases, where there were stitch abscesses. Only when the opening was small or showed a tendency to close was a catheter found necessary to enlarge the opening and allow free irrigation. The appendix was kept open for periods varying from three to twelve months, closing spontaneously in some cases, while in others it was necessary to cauterize the mucosa in order to close it. The only unpleasant sequela in the writer's series of cases was a small ventral hernia. In one attempted appendicostomy the appendix was found short and completely occluded, necessitating its removal and the performance of cecostomy. In another case the operation of appendicostomy was successful but through-and-through irrigations were impossible because of a stricture of the transverse colon which was detected at a second operation, when the appendix was removed and the abdomen closed.

The following eight cases of appendicostomy and one of cecostomy, performed by the writer, demonstrate the value of these operations in ulcerative and inflammatory conditions of the colon, sigmoid and rectum.

Case I. G. M., male, age forty-two; Mexican; married; family history negative; markedly anemic; appetite and digestion poor; tenderness and pain over colon, almost constant; had suffered from mucous colitis for several years and from chronic diarrhea for past two years. Number of stools varied from three to six daily and contained abundant mucus and some blood.

Proctoscopic and colonoscopic examination showed a highly congested and thickened mucosa with a few superficial ulcers. Microscopic examination of the warm stool revealed motile *amœbæ dysenteriæ*, and the diagnosis of amebic dysentery was made.

Internal medication and irrigations having been previously tried and proved unsatisfactory, immediate operation was advised.

Appendicostomy through intermuscular incision performed; appendix freed with difficulty, opened, probed and ligated with silk; cecum attached to parietal peritoneum; peritoneum and wound closed by layer method, and appendix anchored to the skin. Ligated portion of stump sloughed on sixth day, but repeated attempts at through-and-through irrigation, using boracic acid solution, failed. Only a small quantity of the solution could be introduced and this caused great discomfort, being retained by a stricture of the transverse colon discovered at the second operation, at which time the appendix was removed and the abdomen closed. Patient still under observation, but future treatment for stricture not yet decided upon.

Case II. C. F., female, age eighteen; American; unmarried; family history of tuberculosis. Anemic, loss of weight considerable, lungs sound. Diarrhea of three years' duration; daily number of stools three to eight, offensive and containing pus, blood and mucus, and upon microscopical examination, tubercle bacilli were found.

Proctoscopic and sigmoidoscopic examination showed mucosa pale and smeared over with a thin mucopurulent discharge and presenting here and there deep, irregular ulcers with undermined edges, but not sensitive to touch. She also suffered from simple fistula in ano. Diagnosis, tubercular colitis and ulceration.

Appendicostomy and operation for fistula performed. Gridiron incision at McBurney's point, appendix easily brought out, denuded of meso-appendix and anchored without opening, the abdomen being closed by layer method. On the fourth day the end of the appendix was removed one fourth of an inch from the skin, and irrigations of weak silver solution were begun. Abdominal wound healed by primary union and fistula wound healed kindly. Patient left the hospital on twentieth day, much improved. Irrigations continued for six months. She rapidly gained in weight and appeared entirely well at this time, when the appendical opening was closed by cauterization with galvanocautery.

Case III. H. W., age thirty-eight; single; liveryman. Family history negative. Persistent diarrhea of several years', duration. From fifteen to thirty evacuations daily, consisting principally of mucus and blood. Bacteriologic examination of stools negative. Rectal and colonic examination revealed a highly inflamed, thickened mucosa, extensively ulcerated as high up as could be seen.

Diagnosis, ulcerative colitis.

Appendicostomy through incision carried directly down through the skin, muscles and peritoneum. Appendix long, freed with great difficulty, opened, probed and ligated. Cecum attached to parietal peritoneum, incision closed by layer method and appendix anchored to skin.

Irrigations of saline solution begun on fourth day and from this time on he never passed more than one or two stools daily, which appeared nearly normal and only rarely contained a slight amount of mucus and blood. He resumed his occupation in four weeks and at the end of four months, when the opening closed spontaneously, the stools were normal, he had gained fifty-two pounds in weight and considered himself well.

Now, at the end of fourteen months, he is perfectly well except for a small ventral hernia, which may have been the result of slight suppuration which occurred in the wound or the straight through incision made in this case.

Case IV. J. R., male, age twenty-eight; painter; married; tertiary syphilis; chronic diarrhea, fifteen to twenty stools each day. Bacteriologic examination negative.

Extensive, deep, irregular ulceration of upper rectum and sigmoid. Diagnosis, syphilitic ulceration.

Cecostomy by Gibson's valvular method, the appendix being very short, completely occluded and not suitable for appendicostomy. Through-and-through irrigations of weak solutions of potassium permanganate were easily carried through the catheter left in the cecum. The wound healed by primary union and at the end of three weeks the patient left the hospital very greatly improved. Now, eight weeks after the operation, the stools are normal in number and appearance, the ulceration is practically healed and he has gained fifteen pounds, but the irrigations are still continued.

Case V. D. R., male, age thirty-two; painter; married; family history negative. Had been in Manila several years and was treated repeatedly in the hospitals there for dysentery. Bacteriologic examination revealed motile *amœbæ dysenteriæ*. Stools frequent with much blood and mucus. Numerous ulcers of rectum and sigmoid found.

Appendicostomy through intermuscular incision, appendix freed, brought into the wound and anchored. Peritoneum, muscles and skin closed snugly about appendix. End of appendix amputated on third day and bowel irrigated with solution of quinine. There was a small stitch abscess which healed quickly and at the end of the third week the patient left the hospital, the diarrhea and bloody stools having ceased. Irrigations were kept up for several weeks and resumed at intervals of one year, when he was entirely well and the appendix was closed by cauterization.

Case VI. B. G., male, age thirty-eight, single, United States army captain. Had served in Philippines several months.

Diagnosis, amebic dysentery, confirmed by bacteriologic examination.

Appendicostomy, intermuscular incision; appendix opened, probed and ligated. Cecum fastened to abdomen, appendix anchored in wound and latter closed by layer method. Irrigations with boracic acid solution begun on fifth day. Wound healed by primary union and patient discharged from hospital on eighteenth day. From the day the irrigations were begun, improvement was rapid and eight months after the operation he was entirely well.

Case VII. Mrs. E. S., age forty-one, family history negative. Diarrhea of several years' standing, fifteen to twenty stools daily, containing mucus, casts and blood.

Diagnosis, ulcerative colitis.

Appendicostomy, intermuscular incision over McBurney's point; appendix freed with difficulty, opened, probed, cauterized and ligated with silk. Cecum stitched to inner abdominal wall, wound closed by layer method, and appendix anchored to skin. Stump sloughed and irrigations of boracic acid begun on fourth day. Wound healed by primary union. Patient left hospital at end of third week greatly improved. Eight months after the operation patient is well, but occasional irrigations are kept up as a matter of precaution.

Case VIII. H. W., male, age thirty-one; soldier; family history negative. Contracted dysentery while at Manila. Repeatedly in the hospitals there where irrigations of silver and quinine were tried but gave only temporary relief. Patient had from ten to twenty bloody stools daily, was anemic and had lost considerable in weight.

Repeated examination of the evacuations showed the presence of *amœbæ dysenteriæ*. Sigmoidoscopic examination revealed extensive ulcers of the sigmoid and rectum.

Diagnosis, amebic dysentery.

Appendicostomy; intermuscular incision; appendix opened, probed, ligated and cauterized. Cecum fixed to abdominal wall and wound closed by layer method. End of appendix dropped off on fifth day, and irrigations of ice water were begun.

Evacuations reduced to two daily at end of the first week, were nearly normal in appearance and contained but a slight amount of blood and mucus. The wound healed nicely by primary union. In ten weeks from the time of operation he had gained thirty pounds. passed only one well-formed stool daily, and his general health had improved greatly.

Patient still under observation and the irrigations are continued.

Case IX. H. W., male, age forty-five, traveling salesman; family history negative. Colitis for ten years, had suffered from chronic diarrhea for past three years, passing from three to six stools daily containing a great deal of mucus and some blood. Bacteriologic examination negative.

Proctoscopic and sigmoidscopic examination showed a congested and thickened mucosa covered with mucus, with here and there superficial ulcers. The sigmoid flexure could be seen prolapsing into the rectum.

Diagnosis, ulcerative colitis and invagination of the sigmoid into the rectum.

Operation, appendicostomy and suspension of the sigmoid flexure to the abdominal wall. Appendix located and freed from abdominal adhesions through an intermuscular incision. It was long and very small, but when opened and probed it was patent. Stump cauterized before the appendix was ligated. Wound closed by layer method. Abdomen opened in left inguinal region, the sigmoid drawn up out of the pelvis and attached to the inner abdominal wall and the wound closed.

Patient did well for three days when he began running a temperature and the pulse beat became rapid. This continued until the fifth day, when he was anesthetized and sloughing of the appendix and a large part of the cecum around its base was detected. Patient died shortly after the second operation.

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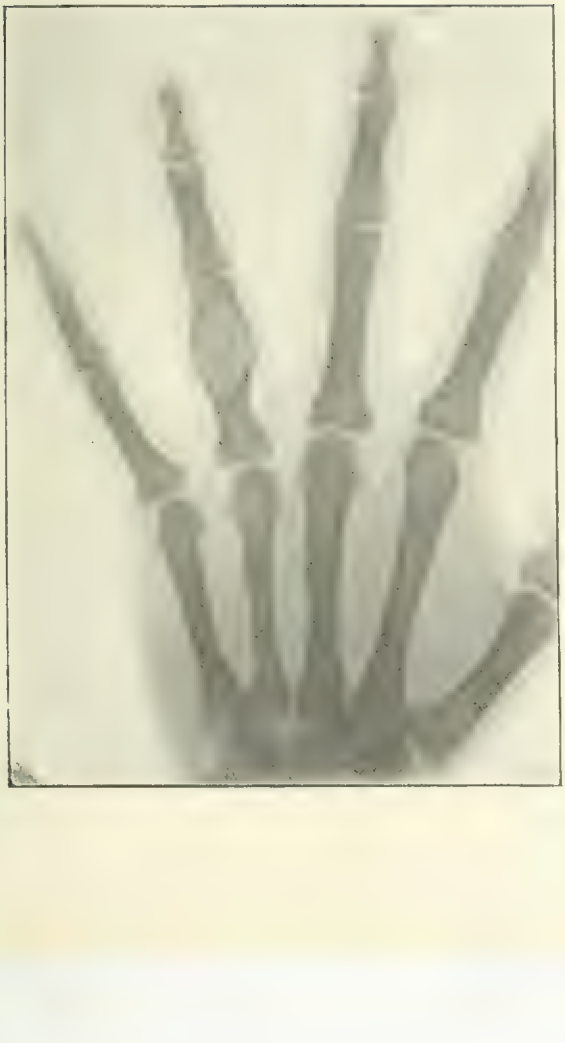
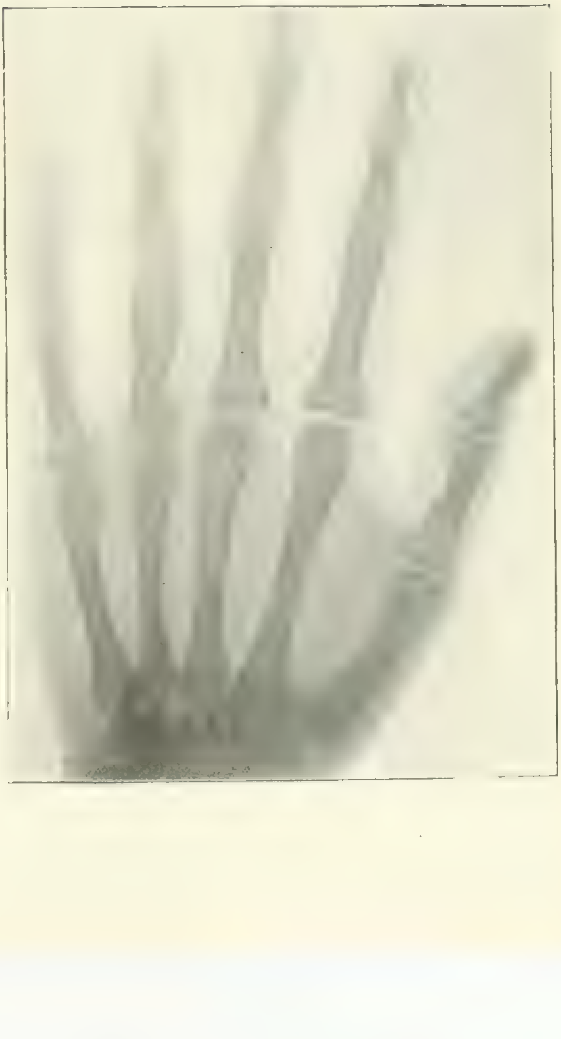
Negro Medical Association. — The eighth annual meeting of the National Medical Association of Negro Physicians and Surgeons of the United States was held in Philadelphia Aug. 21–23. The association has a membership of over 2,000. — *Journal of the American Medical Association.*





Clinical Department.

BONE CYST OF THE PHALANX.

BY J. B. BLAKE, M.D., BOSTON.

In the early part of July, 1905, a young lady, twenty-four years of age, was seen in consultation with Dr. G. J. Dailey, of Somerville. The proximal phalanx of the fourth right finger was enlarged and barrel-shaped, making a noticeable deformity. The soft parts were not affected, nor were there any signs of inflammation. The general health of the patient was good, save for a moderate degree of anemia, and the family history excellent. There was not the slightest trace of any constitutional disease. The story of the finger was as follows: For a long time, possibly since three or four years of age, there had been a slight swelling of this phalanx; this swelling was at first painless, but in her later childhood moderate tenderness developed. About six years ago, her brother accidentally struck the finger a sharp blow with his hand, knocking it against a table; after this it increased in size more rapidly and became more painful and less easily moved. There were no signs of fracture at this time. When first seen by me there was obvious deformity and well-marked tenderness, with pain of varying intensity. The probable diagnosis was osteo-sarcoma; as before stated neither the local nor the general examination gave any signs of tubercular or specific disease.

The x-ray immediately suggested a bone cyst, similar to that described and illustrated by Dr. E. A. Codman in the Boston Medical and Surgical Journal, Feb. 25, 1904. Conversation with him strengthened this opinion, and the suggestion of incision rather than excision, was followed. An incision was made on the side of the finger laying bare the bone, which seemed normal on its outer surface. A longitudinal incision was then made with a small chisel into the phalanx; it was found that the bone was as the plate suggests, a mere shell with thin walls, and filled with a soft, non-odorous jelly-like substance, in which were small spicules of bone, but no pus, and nothing resembling sarcoma. The cavity was thoroughly though gently curetted, packed temporarily, wiped as dry as possible, the periosteum drawn over the bone wound, and the soft parts sutured snugly. Recovery was uneventful. The wound healed by first intention and the scar is invisible save on close inspection. Tenderness, pain and swelling have steadily diminished, until now, one year after the operation, the finger is normal in appearance and sensation, save for a moderate and temporary soreness in cold and stormy weather. Motion is normal.

It is obviously well worth while to avoid the ugly deformity of a complete or even partial amputation of a finger, particularly in the case of a young and attractive girl. The case seems to be the second one recorded, and the good result obtained was directly due to Dr. Codman's paper.

The pathological diagnosis (Dr. Mallory) was enchondroma with myxomatous degeneration.

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Ticks and Spotted Fever. — According to the *Medical Record* Dr. King of the U. S. Public Health and Marine Hospital Service, who has been in Montana studying the manner of infection of spotted fever, states that he has confirmed the theory of the agency of ticks in transmitting the disease, having succeeded in inoculating animals in this way.

Reports of Societies.

SECOND ANNUAL MEETING OF THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Abstract Report.

(Concluded from No. 9, p. 236.)

Thursday, May 17, Evening Session.

DUTIES, RESPONSIBILITIES AND OPPORTUNITIES OF THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Dr. Lawrence F. Flick, Philadelphia, vice-president, delivered an address on this subject. He outlines the fearful ravages of tuberculosis in this country and said in regard to the work of the Association that great movements always have their beginning in a humble way; these humble movements become united and finally the world is engaged in a great crusade and he believed the extermination of the great white plague was the world work of this generation. The secret had already been discovered by which this greatest enemy of mankind could be overcome; it had been presented to the world without compensation or return and it but remained to take advantage of it. He said the great calamities that had befallen the country from time to time, as the Chicago fire, the Johnstown flood and the San Francisco earthquake had brought the world to its feet with offerings of money and yet all these calamities combined were not as great as is the calamity of tuberculosis to our country every year; the loss of life in a single year from tuberculosis was fifty times greater than it was in all those calamities; the amount of suffering from tuberculosis for a single year was greater than was the total suffering in those calamities. He believed if the disastrous influence of tuberculosis upon any community be presented to the public in a concrete form in the manner in which the San Francisco earthquake was presented; if all the consumptives could be marshaled together and their suffering presented at a glance, the response for the amelioration of that suffering would be as great as we had just seen in California. He advocated the establishment of hospitals, sanitoria, convalescent farms and public dispensaries where the poor could be treated and the scientific care of the better off in their own homes. He deprecated the fact that the medical schools turned out so many physicians unacquainted with the best methods of combating the disease and hoped for improvement along this line. He recommended that the Association establish permanent headquarters in Washington and that its invitations to the associations of other countries should have the seal of the approval of the President of the United States Government. He also advocated the establishment of a Lecture Bureau providing speakers to visit every part of the country and disseminate knowledge of how best to combat the disease.

Friday, May 18, Morning Session.

Clinical and Climatological Section.

THE SCOPE AND AIM OF THE STATE SANATORIUM FOR TUBERCULOSIS.

Dr. Vincent Y. Bowditch, Boston, chairman, delivered this address. He referred to the origin of the state sanatorium and said that to Dr. Trudeau belonged the credit for having been the first in this country to demonstrate what could be done in the treatment of tuberculosis in the sanatorium. The chief idea was to secure absolutely fresh air all the time, and within the last decade these ideas had taken a great hold upon the people throughout the country. He believed that sanatoria should be built away from cities and maintained for the use of incipient cases; there advanced cases should not be sent to such institutions, but hospitals in the towns should be preferred for these. Sanitaria for patients still in vigorous bodily health should not, he said, be so large as to render individual care impossible, for if proper supervision of the individual is diminished the chances of benefit were lessened. He thought we should aim to make the state sanitaria centers of scientific research. That this was no Utopian dream, he said, was evidenced by the work of the Boston sanatorium where aid was given to hundreds of patients and scientific research carried on in a valuable way.

REPORT OF THE COMMITTEE ON CLINICAL NOMENCLATURE.

Dr. V. Y. Bowditch, Dr. Lawrason Brown, Saranac Lake; **Dr. W. H. Bergtold**, Denver; **Dr. Herbert Maxon King**, Liberty; **Dr. George W. Norris**, Philadelphia, and **Dr. John H. Pryor**, Buffalo, constituting the committee made this report of which the adoption of Turban's plan, which had already been adopted by the International Association in Europe, was the basis, the committee making some modifications of and additions to the original. In presenting the scheme to the Association for approval or otherwise the committee had recognized the fact that it was necessarily not perfect, but believed it could be used as a working basis until time should show whether further modifications were advisable or not. The plan was unanimously adopted.

THERAPEUTIC USE OF TUBERCULIN COMBINED WITH SANATORIUM TREATMENT OF TUBERCULOSIS.

Dr. Edward L. Trudeau, Saranac Lake, read this contribution. He said the wild enthusiasm that had at first greeted Koch's announcement in regard to tuberculin had soon been followed by denunciation of the proposed method of treatment. It came to be considered dangerous, its use even amounting to malpractice, but the continued use of the general principle had kept up an interest in the subject. He had used it in a limited number of cases continuously since 1890 and he gave a summary of his results in these cases. His conclusion was that tuberculin should not be used except in exceptional cases. On the other hand, as a method of revealing the presence of the disease it was of great value. In spite of the outcry against it it was based upon a proper idea. The idea first held that animals were rendered immune by it was a false one; it produced no immunity that was lasting; that had only been done by the use of the atenuated bacilli. It had been impossible to reach any conclusion as to the relative value of the different tuberculins; the best was made from the most virulent germ and from the uncrushed bacilli. Dr. Trudeau said we were just on the border of a great field of research and it remained as yet to be studied out. His method of administration was by minute and gradually increasing doses. If there was marked reaction the intervals between injections were lengthened or the doses diminished. He said, in conclusion, that he considered the work of Wright and Douglas on the "Opsonic Index" a most valuable contribution to the knowledge on the subject, but the technique required made it impracticable in treating a large number of cases.

Dr. Lawrason Brown, Saranac Lake, opening the discussion on this paper, said that Dr. Trudeau's paper was a most timely one. He believed that we were at the present time on the verge of a great revival of the tuberculin treatment, but it befitted all to keep constantly in mind great moderation in expression and great care in dosage that he advocated so strongly. Above all we should not forget that he had emphasized that which was most important in any treatment, the individualization of each patient with careful attention to his personal susceptibility. His experience had lead him to believe that in many patients there comes a time of increased susceptibility when the patients react more readily even to doses which previously caused no reaction. Great care had to be exercised until this period was passed. In 70 patients treated with tuberculin no reaction occurred during the whole course of the treatment in 12, 1 reaction in 15; 2 in 13; 3 in 10; 4 in 7, and 5 to 11 reactions in 13. In other words, 50% of these 70 had 3 or less reactions during the course of their treatment until large doses were reached (over 100 mg. of the old tuberculin, or over 1 mg. of the emulsion). Of complications occurring, 3 cases had had nephritis, in one due, in part at least, to exposure to cold; the second occurred a year after the patient left the sanatorium during which time he had worked hard; 2 patients had one or more acute gastro-intestinal attacks, usually in the night following the injection; 2 patients developed ischio-rectal abscess resulting in fistula; 1 patient had a sterile abscess in the back. In conclusion, he referred to the empirical state of the knowledge concerning the proper dosage of tuberculin and hoped there would soon be some improvement along this line.

Dr. E. R. Baldwin, Saranac Lake, thought Dr. Brown had well expressed the present status of tuberculin in saying that it was still in the experimental stage. There were certain things about the reaction that he could not yet be satisfied with; we did not yet know the limits of the reactions or how to explain them. Consequently, he thought the use of tuberculin clinically was, as Dr. Brown had said, empirical. He explained that he did not mean by that that it should be limited entirely to people with laboratory experience necessarily, but that it evidently required a great deal of care in its administration. He said the essence of the treatment was the local reaction and the interpretation of that reaction was of prime importance. The local reaction, he said, was a congestion and the explanation of this congestion was difficult. For himself, he thought it best explained on the enzyme theory, the secretion of some kind of ferment that digests the toxins, or tends to digest them into simpler forms.

Dr. Arnold C. Klebs, Chicago, said that in Europe they had begun using tuberculin to a very great extent again, and it was astonishing to realize how little it had been used here. He had been impressed with the point made by Dr. Trudeau as to the great caution to be used in its employment. Only a few years ago doses had been used that one would not think of employing now. We could not be certain of what is going on and it was difficult to control the effect of the injections. In some cases, he said, there had been no indication at all of a local reaction and he had thought that in such cases harm had been done. He had also been impressed with the fact that the various tuberculins were so very different in their reaction and furthermore that the effect of the same tuberculin differed in one bottle from another, and he desired to give a word of warning as to the caution that was to be exercised in switching from one kind to another; this, he thought, was especially true of the emulsion preparations.

Dr. L. Rosenberg, Bedford Station, N. Y., said his results with the use of tuberculin during the past year had been about the same as those of Dr. Trudeau. He thought there had been some improvement in the results obtained, especially in the advanced cases; the best results, he thought, had been obtained with the cases moderately advanced. They had not begun the treatment until the patients had been under observation several months and failed to improve upon the ordinary sanitarium treatment. He was somewhat skeptical as to the use of the test as a diagnosis of tuberculosis of the lungs and thought the reaction only indicated that somewhere in the body there was tuberculosis, without showing that it was in the lungs. He said that in no case did hemoptosis occur during the treatment, and he had found that the menstrual condition was not a contraindication to its employment as it had absolutely no effect. They employed only the old tuberculin in vials and made their own dilution from that.

Dr. S. von Ruck, Asheville, had been working with an extract of the bacilli themselves and they had found that the agglutinins increased during treatment often 300–400%. Where the patients failed to come up in nutrition, and the progress was unsatisfactory, it was noticed that the agglutinins failed to increase He thought that while no hard and fast conclusions could be drawn concerning the value of this indication he felt that they were working along a promising line.

Dr. M. P. Ravenel, Philadelphia, said that in regard to the agglutinin test Landis and himself had carried out some experiments along this line and had concluded that it was not delicate enough to be of value. He did not think Dr. Baldwin's theory as to the cause of the reaction a plausible one as the healing of the lesions was rather in the nature of a fibrosis. In regard to the use of tuberculin in general, he said the whole question comes back to that of the bacillus; we do not know the toxins of that bacillus; with exactly the same media, grown in the same incubator, they would differ. This may have been due, he thought, to the use of a little more acid or alkali in washing the flasks as the bacillus was very susceptible to these things. He thought all the preparations would differ, bottle from bottle, because there was no method of standardizing it.

HEMATOLOGICAL STUDIES IN TUBERCULOSIS.

Dr. Arnold C. Klebs, Chicago, read this paper, which was of a detailed technical study of the blood in cases examined and treated in the Cook County Hospital. (The nature of this paper precludes the possibility of abstracting and would have to be read in full to be appreciated.)

REVIEW OF THE WORK UPON THE "OPSONIC INDEX" (WRIGHT AND DOUGLAS) IN TUBERCULOSIS.

Dr. Nathaniel Bowditch Potter, New York. (This paper would not permit of abstracting.)

THE TREATMENT OF TUBERCULAR LARYNGITIS WITH THE WATERY EXTRACT OF TUBERCLE BACILLI, WITH REMARKS UPON THE ACTION OF SPECIFIC MEDICATION IN THE TREATMENT OF TUBERCULOSIS.

Dr. F. M. Pottenger, Los Angeles, read this paper. He said that this disease rarely occurred unless the lungs were affected and its diagnosis was a matter of experience and skill in laryngology. The prognosis had always been considered grave, especially by the laryngologists. The writer reported in detail the treatment of fifteen cases and made a plea for the routine examination of the larynx in all cases of pulmonary tuberculosis. Indications in treatment were: first, to increase the resisting power; second, to prevent spread; third, to heal the local lesion. He thought that as a remedy inoculation was the best. His experience with the tuberculin made from the bovine bacilli had been promising. He had used for the most part the watery extract of the tubercle bacilli and one thing it did was to keep the condition from spreading. He considered the larynx an ideal location for the use of tuberculin, because the reaction could be watched daily.

Dr. S. von Ruck, Asheville, called attention to the difference between tuberculin and the watery extract of the tubercle bacillus, the latter being a watery extract of a protoplasmic substance obtained from the bacillus without the application of heat. He said that since he had keen making routine examinations of the larynx he had found a much greater percentage of lesions than formerly. With the use of the extract he had found that these showed local reactions, which were never severe and which subsided in a short time, ordinarily without having produced any subjective symptoms. He thought if laryngologists would recognize these facts more generally they would be able to make a greater number of early diagnoses. He had only resorted to operative procedure in 1% of cases and that for relief of dyspnea caused by obstruction in the glottis by infiltration. He only used local treatment where the symptoms were distressing. He said the watery extract had been in use now for ten years, not only in the hands of its author, but in the hands of many physicians in private practice, and in suitable cases good results had been obtained.

Friday, May 18, Afternoon Session.

Sociological Section.

INSURANCE OF INDUSTRIAL WORKINGMEN AS AN INSTRUMENT OF TUBERCULOSIS PREVENTION.

Dr. Arnold C. Klebs, Chicago, read this paper. He said the moneys which set into motion and keep working the ever-growing machinery of tuberculosis prevention in this country were, with few exceptions, supplied by voluntary contributions given with charitable intent, this holding good for almost all our public hospital and relief service; and as Duclaux expressed it "we have remained anchored to that idea of charity, a very noble, very beautiful idea, looked at from the view point of one who follows it, but a false, almost absurd idea, when one contemplates the benefits society can possibly derive from it." If the right and duty of self defense, he said, was to be the basis of our efforts, then it was the one most attacked who should bear the largest share of the burden; to make him who was attacked, though he had not succumbed yet, an object of charity was demoralizing and pauperizing. It was the workingman, especially the one employed in industrial enterprises, without doubt, who was the most attacked and it was he who must grapple with the problem. He then referred to the system of obligatory insurance for workingmen in Germany and said it had become the most powerful factor in tuberculosis prevention in that country. Every workingman of a certain wage scale was obliged by law to insure himself and his family against sickness, invalidity and old age. The employer deducted one half of a certain proportion of the wage and after adding the other half himself remitted the total to the insurance authorities in charge of the fund. The contributions were a trifling tax to the workingman, but the benefits were great. Under the law for sickness insurance there had been paid for the benefit of the insured from 1885 to 1903 $300,000,000 and from the invalidity insurance from 1891 to 1903 $200,000,-

000 and during the past eight years the invalidity insurance offices took care (for an average of three months for each case) of 101,806 tuberculosis patients at a total expenditure of about $9,000,000; 90,000 of these patients had been taken care of in sanatoria established by the insurance office. He thought the necessity for individual submission to social exigencies was becoming more and more appreciated in this country and in this tuberculosis must become the most important point of attack. The industrial workers had a tremendous interest in this struggle, and it was necessary to show them how to help themselves, how to save in time a penny to be ready to meet this greatest of their foes.

Mr. Frederick L. Hoffman, Newark, N. J., discussing Dr. Klebs's paper, said that it must be borne in mind that there was a wide difference between conditions in a paternal government and a republic, and that anything in the nature of paternalism would be distasteful to people in this country. He considered the method in Germany was really a charity and not an insurance, and to attempt such a thing in this country would bring about a social revolution. Society had an important duty and that was to teach how the disease could be prevented and how it could be cured, and the trouble here was that the workingman did not realize that he had nine tenths of the problem in his own hands. He believed that the only solution of the matter in a democracy was to so develop the intelligence and brain power of every man that he would be able to solve the problem for himself. He did not believe the German method was anything but a charity under a different name.

Mr. Wm. H. Baldwin, Washington, said he thought the chief benefit of the German insurance was that they had realized that tuberculosis was a terrible drain and had found a method of curbing it by getting at the disease as rapidly as possible and having the prevention and cure go on together.

Dr. J. H. Lowman, Cleveland, disagreed with Mr. Hoffman that the workingman must be left to solve the problem for himself; it could not be done that way; society must help him; it was for such associations as this to point the way. This had been attempted, in a way, in the inspection of shops which met with favor both from the workingman and the employer.

Dr. Arnold C. Klebs, Chicago, in closing the discussion, said he thought it was a fallacy to believe that the prevention of the disease lay in the workshop; it did not; it lay in the family, in the home, not in the factory, and he believed it could not be reached there with anything as well as with such insurance.

THE INFLUENCE OF SANATORIA ON SURROUNDING PROPERTY.

William H. Baldwin, Washington, Chairman of the Section, delivered an address on this subject, and Homer Folks, New York, Dr. John P. C. Foster, New Haven, H. Wirt Steele, Baltimore, and Livingston Farrand discussed the subject, giving their experiences and the difficulties met with in securing sanatoria in their respective localities.

EFFECTIVE METHODS OF EDUCATING THE PUBLIC.

Paul Kennaday, New York, read a paper on this subject, in which he described the various methods that had been employed in reaching the public, dividing the educational work into three classes: First, lectures, second, publications, and third, exhibitions.

The discussion of this subject was opened by Surgeon-General Wyman, who spoke particularly on the prevention of tuberculosis in Government Departments and of the Executive Order issued Feb. 28, 1906, containing the necessary directions towards this end. The Executive Order of President Roosevelt was issued in pamphlet form entitled "Prevention of Tuberculosis among Government Employees." The order referred to persons and to buildings and prescribed rules to be followed, the non-observance of which would constitute a cause for separation from the service.

Dr. John H. Lowman, Cleveland; Dr. Edwin D. Solenberg, Minneapolis; Alexander M. Wilson, Boston; Dr. Rogers, Yonkers, N. Y.; Samuel H. Adams, New York; Dr. D. S. Wilson, Louisville; Dr. W. Wirt Steele, Baltimore; Health Commissioner Darlington, New York, discussed the subject, showing, in detail, the various methods employed by them in their respective localities for bringing before the people exhibitions, lectures and demonstrations and distributing publications intended to arouse public interest in the work of tuberculosis prevention.

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Recent Literature.

Operative Otology: Surgical Pathology and Treatment of Diseases of the Ear. By Clarence John Blake, M.D., Professor of Otology, in Harvard University, and Henry O. Reik, M.D., Associate in Ophthalmology and Otology, Johns Hopkins University. New York and London: D. Appleton & Co. 1906.

This latest textbook on diseases of the ear contains within the compass of its 350 pages a concise, and yet sufficiently ample, description of the disease processes commonly encountered in the practice of otology. Each of the eight chapters into which the work is divided shows the utmost care in its preparation, and the attention of one at all interested in the subject is held undiminished to the end. The chapter on anatomy is written with special reference to operative procedures, and is illustrated by numerous original plates from specimens in the Harvard University collection.

The chapter on middle-ear operations contains a very full account of certain methods of treatment that one sees too seldom mentioned in recent works; namely, the finer manipulative procedures which can be carried out only in the hands of the skilled operator. While the major surgical work, to which otology owes so much of its advancement in recent years, receives its full share of attention in the appropriate chapters, the full description given of middle-ear operations unfolds to the student the results of years of investigations, and will tend to stimulate further research along these lines.

The authors very properly condemn the practice of extensive removal of the tip and zygoma in all simple mastoid operations; but the advisability of adopting the blood clot dressing as recommended in these cases seems to be open to question.

The book, as a whole, impresses one as a fair and impartial presentation of the facts most necessary to a proper understanding of the subject as practised to-day.

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THE TREATMENT OF TETANUS.

For many years the treatment of tetanus has aroused the interest both of the practising physisian and of the experimenter. A disease of strikingly definite character produced by an organism or its products which is known offers a field for study which undoubtedly in time will be crowned with success from the standpoint of treatment. An interesting, concise discussion of the general subject from a somewhat new point of view appears in the current number of *Surgery Gynecology and Obstetrics*, by Dr. C. A. Porter, of Boston, being a paper read at the last meeting of the American Surgical Association.

Our present knowledge of the action of tetanus toxin is essentially as follows: Diffused from the local lesion the toxin enters the motor nerve plates of the muscles and passes thence within the axons of motor nerves toward the motor ganglia in the cord. The toxin also enters the general blood current whence it is either excreted or destroyed or indirectly conveyed again to the nerve structures. The poison shows a strong tendency to enter into combination with the higher central ganglia, and on this fact is based the possibility of a rational treatment. The fact should also be recognized that antitoxin ascends the axons more slowly than the toxin, and, therefore, it must be introduced at a higher level than the toxin and before stable union between nerve and toxin has occurred. Dr. Porter on the basis of these generally accepted principles finds the following indications for treatment: (1) To anticipate the centripetal course of the toxin by an immunizing injection at a higher level; (2) by local injections of antitoxin, to neutralize the toxin at its upper limit of advance; (3) by intravenous or subcutaneous injections, to neutralize all circulating toxins; (4) to prevent or retard, so far as possible, lymphatic absorption from the focus, and, by local parenchymatous injections, to render the poison inert; (5) by amputation or excision, with germicides, etc., to remove the source of infection when it is possible, and (6) by symptomatic treatment or the newer anesthetic treatment, cocaine, etc., or magnesium sulphate, to aid the specific serum.

Dr. Porter contends that if the view be true that antitoxin never reaches nerve tissue unless directly injected into it, it follows that cerebrospinal lymph sac injections are useless. Lumbar puncture and subarachnoid injections are presumably inefficacious, and the direct injection of the antitoxin into the cord is obviously too dangerous a proceeding to be attempted except in the most desperate cases.

The suggestion is made that injections might be made into the higher peripheral motor nerves, as, for example, the hypoglossal nerves and the brachial plexuses. This would be a far less dangerous procedure than injections into the substance of the cord. The surgical difficulties are relatively slight, and inasmuch as injections are indicated as near to the cord as possible the nerves should be exposed near their origin and their substance directly injected. As a still more radical procedure it is suggested that in certain cases nerves should actually be sectioned to prevent the passage upward of tetanotoxin. The general treatment suggested is summarized as follows:

(1) Immediate intravenous and subcutaneous injections to neutralize circulating toxin.

(2) Immunizing or neutralizing injections at the highest level which the severity of the symptoms appears to justify; directly into the cord, as advocated by Rogers, or into the higher motor nerves, such as the hypoglossal and spinal accessory, as suggested by myself.

(3) Peripheral intraneural injections as near to the cord as possible. Where amputation is not indicated or allowed, there is positive experimental evidence that nerve section will isolate the toxins in the limb.

(4) Lymphatic absorption will be diminished by the application of Bier's principle of passive hyperemia or by circumcision of the limb.

(5) Parenchymatous injections, *especially into*

the muscles, may be found of distinct value in addition to subcutaneous and intravenous injections.

(6) If possible, the local focus should be thoroughly eradicated.

(7) We have no right to neglect symptomatic treatment.

(8) Animal experimentation gives us no ground for hoping that any treatment whatever can be successful, when once the disease has progressed beyond a certain stage.

The foregoing opinions of Dr. Porter on the basis of a careful study of the literature are highly suggestive and indicate an apparently rational mode of treatment which has hitherto been overlooked. Unfortunately Dr. Porter is unable to substantiate his claims at the present time by an array of cases from which the ultimate test must naturally come. The means of treatment, however, apart possibly from the somewhat radical sectioning of nerves, is one which may be tried without danger and which certainly should receive the careful consideration of those into whose hands cases of tetanus may come.

THE MARKET VALUE OF THE PHYSICIAN'S PERSONALITY.

The trust idea is a very dominant factor in the life of our day; it permeates almost every business and calling. The department store is a huge collective affair which furnishes cheaper the thousands of things that formerly were bought at the comfortable little shops in one's neighborhood; and because they can be had cheaper — for that is the present day paranoia, to get things cheap, regardless of any other consideration — the small dealer is either driven quite out of business, or he must accept, if he be fortunate enough to have the offer, an humble position in the great establishment. Most industries have undergone combination. The old time planter, and a fine type of man he was, on the whole, has had to sell out to the tobacco trust, if he would escape utter ruin; and he has been glad to have secured a few shares of the latter's stock. The small butcher is an almost forgotten factor in civilization; the beef trust has done for him long ago. Nor has the result, it seems, been an unmixed blessing.

And not only are business and the trades subject to this brutal tendency to concentration, which is so callous of the claims of the individual to justice and right dealing. The stage is now trust-controlled, to the detriment of art. In architecture the solitary genius is greatly handicapped unless he becomes a member of one of a few great firms. The young lawyer is all but lost if he has not a desk in one of the powerful offices. Even in the church the venerable councillor and the true man of God must oftentimes give way to the young hustler, who is himself but the representative of a vast aggregation of religious activities.

There is, however, one field which the trust idea has not successfully invaded — the practice of medicine. The effort has been made. A company was once formed, some ten years ago, upon the basis that a competent physician was to be sent to the subscriber whenever he had need of medical advice. The company was to select the physician from among its staff, and it was to be the judge of his competence, although he might be an utter stranger to the sick man. But the plan failed dismally, for the very simple reason that nowhere else is the personal factor so essential as it is between physician and patient. Severe illness, with the possibility of a fatal issue, is an event than which there is none more serious in life; and in such crisis the sufferer must have the help of the man who has served him and his faithfully through many years. For the doctor who is well grounded in the principles of his science, who has the skill to apply these principles sensibly in practice, who has a conscience and a heart, who, above all, has character, — that quality difficult of definition, but instantly comprehended and appreciated, — the syndicate idea need have no terrors. In medicine the physician himself, to use the title of a justly celebrated book, is master of his own output, and of its righteous equivalent in income.

MEDICAL NOTES.

Honorary Degrees at the British Medical Association Meeting. — As announced in *Science*, at the meeting of the British Medical Association, held recently at Toronto, the degree of doctor of laws was conferred by the University of Toronto as follows: Prof. Thomas Clifford Allbutt, A. H. Freeland Barbour, Sir Thomas Barlow, Sir James Barr, Sir William H. Broadbent; H. W. Langley Browne, M.D., chairman of the council of the British Medical Association; George Cooper Franklin, retiring president of the association; Prof. William Dobinson Halliburton, Sir Victor Horsley; Dr. Donald McAlister, president of the British Medical Council; William Julius Mickle, M. Louis Lapicque, Prof. L. Aschoff; and Dr. W. J. Mayo, M.D., president of the American Medical Association. In this list the names of men from the United States are few. Dr. Mayo is, no doubt, to be the more congratulated because of his position of somewhat lonely distinction.

The Chicago Milk Supply. — According to a recent bulletin of the Chicago Health Department, the milk situation is stated to be very unsatisfactory. "The slight measure of relief afforded by the rains of a fortnight ago has been lost and pasturage is again scanty. The extent of the milk famine may be measured by these two facts: The usual proportion of watered milk at this season of the year is less than 6%; it ranges now above 8%. The usual price at this season is 90 cents for an eight-gallon can of milk; it is now $3.00 per can. The Bacteriological Department specially examined the milk from thirty shippers. Only one sample was found to contain an excessive number of bacteria and many pus corpuscles. This case is being investigated to ascertain the source of the pus, and this will be regularly done hereafter. This is supplementary to the dairy inspectors' work, and will, no doubt, be of great value in discovering diseased cows among the herds that supply milk to the city of Chicago."

The Death of Dr. Fritz Schaudinn. — The death of Dr. Fritz Schaudinn, which occurred early in the summer, removes a man who unquestionably had before him a most brilliant future. At the time of his death he had not yet completed his thirty-fifth year. His main work was in the departments of zoölogy and protohistology; and his discovery of the Spirocheta pallida as the practically undoubted organism of syphilis places his name on the roll of the great medical discoverers. As is not unfrequently the case with men who have devoted their energies and time to scientific pursuits, he died leaving his family with small resources. According to the *British Medical Journal*, however, a movement has been set on foot in Germany to raise a memorial fund to be applied for the benefit of his widow and children, who, owing to his untimely death, have been left in straitened circumstances. An English committee, consisting of Prof. Clifford Allbutt, Sir Michael Foster, Mr. Jonathan Hutchinson, Prof. Ray Lankester, Sir Patrick Manson, Professor Osler, Mr. John Tweedy and Prof. Sims Woodhead, has been formed to co-operate with the German promoters of the scheme. By the death of Schaudinn, protozoölogy, which in his hands showed such brilliant promise of development, has suffered an almost irreparable loss. There could be no more fitting memorial of a life given to the advancement of knowledge than a provision that will place those who depended on him above the reach of want. Subscriptions may be paid to Mr. Adam Sedgwick, Treasurer of the Fund, New Museums, Cambridge, or direct to the Schaudinn Memorial Fund at Messrs. Barclay & Co.'s Bank, Cambridge.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Sept. 5, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 27, scarlatina 5, typhoid fever 43, measles 1, tuberculosis 25, smallpox 0.

The death-rate of the reported deaths for the week ending Sept. 5, 1906, was 18.01.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Sept. 1, 1906, was 227, against 212 the corresponding week of last year, showing an increase of 15 deaths and making the death-rate for the week 19.66. Of this number 119 were males and 108 were females; 222 were white and 5 colored; 160 were born in the United States, 66 in foreign countries and 1 unknown; 52 were of American parentage, 150 of foreign parentage and 25 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 28 cases and 1 death; scarlatina, 13 cases and 0 deaths; typhoid fever, 64 cases and 5 deaths; measles, 4 cases and 1 death; tuberculosis, 28 cases and 23 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 12, whooping cough 2, heart disease 21, bronchitis 3 and marasmus 3. There were 13 deaths from violent causes. The number of children who died under one year was 67; the number under five years 84. The number of persons who died over sixty years of age was 32. The deaths in public institutions were 100.

There were 1 case and 1 death from cerebrospinal meningitis during the week.

Dedication of the Wentworth Hospital. — The Wentworth Hospital in Dover, N. H., a gift of the late Arioch Wentworth, was formally dedicated Aug. 30. The hospital building is of brick, two stories in height, built at an expense of approximately $100,000. It is expected to accommodate about one hundred patients.

Typhoid at West Canaan, N. H. — It is reported that typhoid fever has appeared in the town of West Canaan, N. H., as a result of the pollution of the main public supply of drinking water. About thirty cases have been discovered, but the epidemic should not spread, now that the source of infection is definitely known.

Hospital for Littleton, N. H. — Work on a hospital at Littleton, H. N., has been begun. Much interest has been taken in this enterprise throughout the whole region of the White Mountains.

Typhoid Fever in Lynn and Haverhill, Mass. — A large number of cases of typhoid fever have appeared in Lynn within the last few weeks. At last reports a certain milk supply was regarded as the probable source of infection, but the occurrence of the disease at least suggests the desirability of a proper filtration plant. This has already been recommended by the State Board of Health and other public bodies.

An outbreak of typhoid fever in Haverhill, in which about twenty cases occurred, has been traced to a definite milk route, the conveyer of the infection being an employee who had had the disease for three weeks before being isolated. The epidemic is now under control.

NEW YORK.

Enlargement of Infirmary for Women and Children. — Plans have been filed at the Building Department for enlarging the New York Infirmary for Women and Children, on Stuyvesant Square. A seven-story addition is to be erected, at a cost of $100,000.

A Centenarian. — Timothy Dillon, of New Rochelle, believed to be the oldest resident of Westchester County, N. Y., died on Aug. 27, at the age of one hundred years, having been born in Ireland in 1806. His long life seems to have been an illustration of the beneficial effects of pedestrianism as an exercise. It is related that when he first came to New Rochelle, sixty years ago, there being no Roman Catholic Church in that village, he walked twice a week to St. Peter's, in Barclay Street, New York, a distance of twenty miles, in order to attend service there. Up to within two days of his death he was accustomed to take a four-mile walk daily. It is said that he left more than two hundred descendants and other relatives in New Rochelle and its vicinity.

Correspondence.

FESTINA LENTE.

New York, Aug. 25, 1906.

Mr. Editor: I read with interest Dr. Spear's letter apropos of freight engineers in your issue of Aug. 9. The Chinese proverb which he quotes is very apt. A sentiment to the same effect is that of the surgeon, who taught: It takes three minutes for a man to bleed to death from a wound in the neck; and you can tie the carotid in two minutes, *if you are not in a hurry.*

Truly yours,

John B. Huber.

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SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, AUG. 21 TO 24, 1906.

(From our Special Correspondent.)

Toronto, Canada, Aug. 30, 1906.

Mr. Editor: This meeting, the largest ever held by the British Medical Association, has been entirely successful from every point of view. Over two thousand medical men, from every part of the British Empire, from the United States and foreign countries registered, making, with lady visitors, over three thousand visitors to Toronto. Notwithstanding the intense heat and daily thunderstorms all of the various sections were well attended, the scientific sections indeed being almost too much crowded. The various social functions, luncheons, garden and dinner parties which surrounded the visitors in almost embarrassing profusion were thoroughly enjoyed by Toronto's guests who leave with the most grateful and pleasant recollections of their too brief sojourn. Perhaps the greatest benefit which has accrued from this meeting, however, has been not the impetus given to scientific investigation, nor the deepened impression on the lay mind of its public importance and value, but the tightening of those bonds of common interest, united endeavor and sympathetic relation which are rapidly bringing together the members of the profession, Canadian, American and British, into one great and harmonious medical confraternity. The meetings were largely attended by medical men from the United States who supplied many of the important papers and added greatly to the interest of the discussions.

On Tuesday, the 21st inst., after the morning's meetings had been held, an address of welcome to the Association was given and Dr. Reeve was inducted as president for the year. Dr. Reeve, in his excellent and scholarly presidential address, delivered in the Convocation Hall, to a crowded meeting of the members of the Association, and gayly attired ladies who were outdone in splendor by the robed delegates from the universities and medical corporations, covered the whole field of medicine in a general review of contemporary medical science and its probable future trend.

Omitting any description of the receptions held by the Lieutenant-Governor and Mrs. Clark and by President and Mrs. Reeve, the chief interests of the day centered round Dr. W. S. A. Griffith's address in obstetrics and the sectional meetings in medicine, pathology and physiology. In the Section of Medicine after a presidential address by Sir Thos. Barlow, "Blood Pressure in Relation to Disease" was discussed, Dr. Percy M. Dawson, of Baltimore, giving a physiological introduction followed by Dr. G. A. Gibson, of Edinburgh, Sir Wm. Broadbent, Prof. Clifford Allbutt, who gave a lucid and masterly account of the "Relation of Blood Pressure to Arterial Sclerosis," D. A. Stengel, of Philadelphia, and others. A joint discussion was held between the sections of Physiology and Pathology, opened by the reading of a paper by Prof. J. G. Adami, of Montreal, on the pathology and physiology of the nucleus, entitled the "Dominance of the Nucleus." This paper ranks as one of the most important read at this conference. Professor Adami's conclusions were, that the nuclear matter conveys and determines, or controls, the inherited peculiarities of the individual; that the conveyance is through matter contained in the chromatin loops or chromosomes, while it may be that these individual loops, varying among themselves, determine particular conditions; that the nucleus is essential not only for vegetative activities but for the higher metabolic activities of the cell and their coördination and that nuclear matter possesses in itself potentialities superior to those of any ordinary constituent of the cell body. "From the *omne vivum ex vivo* to the *omne ovum ex ovo* and the *omnis cellula e cellula* of our predecessors we now reach the *omne chromosoma e chromosomate* of the modern student of development and see before us surely the conclusion *omne biophorum ex biophoro ejusdum generis.*" The important bearing of Professor Adami's conclusions on all fields of medicine is obvious.

On Wednesday, the 22d inst., numerous papers of importance were read, those of greatest interest and public value being possibly the contributions of Dr. Bashford, of the Imperial Cancer Research Fund, and Drs. Clowes and Calkin and Professors Gaylord and Garey of the Gratwich Laboratory for Cancer Research, Buffalo. The work of the Gratwich Laboratory is already well known on this side of the Atlantic, but Dr. Bashford's paper may be concisely epitomized here. Dr. Bashford referred to the extent to which cancer pervades all races of mankind, civilized and aboriginal, and to the fact that the disease occurs throughout the vertebrate scale down to the marine teleostean fishes; that if allowance be made for anatomical differences in different animals the lesions of cancer are identical in all animals, and he gave as the most striking result of the investigations under the Imperial Cancer Research Fund, the demonstration of the facts that the increasing frequency of sarcoma and carcinoma with advancing years held good both for long and for short lived animals, so that the ratios of the periods of relative freedom from cancer to the absolute duration of life were the same in the two groups. The same law held good for the different organs and tissues of individuals, as instanced by the malignant new growths of the chorion and of the skin at the two extremes of life. The disease appeared to arise *de novo* in each individual attacked, and there was no evidence compelling one to have resort to a theory of infection in order to explain its nature. On the contrary, new growths developed in a manner dependent, in quite remarkable degree, on the very definite laws which control length of life and the absolute amount of growth in different organisms. This also applied to the separate organs of individuals. The results of experimental studies on propagated cancer were then outlined, the author refraining from a detailed account of his experiments. He stated, however, that all the lesions of spontaneous cancer could be produced experimentally in mice, and further that the mice could be protected from the effects of inoculating them with malignant new growths. Although only the most cautious statements were made during the discussion it may fairly be gathered that the outlook as regards the possibility of producing immunity against cancer in man is becoming less gloomy.

In the Section of Physiology a remarkable paper was read by Dr. Alexi Carrell, of Chicago, on the "Transplantation of Blood Vessels and Organs," being the result of work done in collaboration with Dr. C. C. Guthrie, also of Chicago, The conclusions reached were:

1. Uniterminal and biterminal transplantation of veins and arteries produce, from a functional point of view, the transformation of veins into arteries.

2. Transplanted veins adapt themselves to the new functions imposed.

3. Arterio-venous anastomoses adequately transmit the blood indefinitely; and

4. Clinically, the transplantation of veins may have applications.

Another interesting discussion was opened by Professor Chittenden of Yale at a joint discussion of the sections of Physiology and Pathology, on the "Rôle of the Nucleus in Nutrition." His conclusions were founded mainly on experimentation on the lower animals and led him to advocate the ingestion of the minimum amount of proteid material necessary to maintain health. There are more people, he said, suffering from over-eating than from alcoholic liquor. The discussion was carried on by Professor Halliburton, of London, Dr. Robert Hutchinson, of London, and Dr. C. R. Rama Rao, of Madras, only the latter of whom was in entire agreement with Professor Chittenden. Perhaps Professor Chittenden's opinion as to the relative amounts of harm done by over-eating and over-drinking, true though it may be, would not be indorsed by either Sir Victor Horsley or Prof. Sims Woodhead, who were the principal speakers at a luncheon given on Wednesday to some six hundred guests. The speakers both strongly urged the claims of the British Medical Temperance Association on the medical profession, and contended that alcohol, as a remedial agent in disease, was of no value. Sir Victor Horsley, however, admitted that the majority of the profession were as yet hostile to this opinion, though, as he showed by charts representing the relative consumption of milk and alcohol in seven London hospitals, alcohol was steadily declining and milk increasing in hospital practice. A masterly address was given in the evening of Wednesday by Sir Victor Horsley on "Technique in Operations for Intra-Cranial Disease." Sir Victor Horsley, who always commands a large audience, was listened to with rapt interest for over an hour and a quarter. On the following day, Thursday, Sir Victor Horsley, who appears to be tireless, gave at the Section of Physiology an account of a method of investigating the deep structures of the central nervous system with a *résumé* of the results obtained from the cerebellum. Working in collaboration with Dr. R. H. Clarke, this distinguished surgeon has for four years been carrying on an inquiry, with the aid of an instrument devised by the authors, into the localization of the component parts of the cerebellum, with the result that this structure has now been so completely mapped out that any group of cells 1 cmm. in size can be accurately localized. Incidentally, with a quiet nonchalance which impressed his auditors, Sir V. Horsley stated that the first three years' work had been thrown away, owing to a mistake involving a divergence of 3 mm. Accidents of the kind are inevitable, *che sara, sara,* but only the great man can regard them with philosophic calm.

The annual dinner of the Association, one of the most popular events of the meeting, took place in the Victoria Rink and was largely attended on Aug. 23. The business meetings of the Association came to an end on Friday, the 24th, when international sanitary protection came under discussion at the Section of State Medicine. The chief speaker was Dr. P. H. Bryce, of the Department of the Interior, Ottawa, who strongly urged the necessity for international coöperation in the inspection of emigrants and immigrants. The exclusion of undesirable aliens is becoming everywhere an acute question, and there can be no doubt that legislation on the lines indicated by Dr. Bryce would be of the greatest benefit. In the Section of Therapeutics alcohol in treatment came again under discussion and the point of view opposite to that held by Sir V. Horsley and Professor Woodhead was maintained by Dr. A. D. Blackader, of Montreal, and others. It appears likely that much water will flow under London Bridge before the use of alcohol in some diseases is entirely discarded.

In a brief *résumé* like the present, mention of many interesting and important contributions has necessarily to be omitted, notably in the sections of Pediatrics, Anatomy, Dermatology and Psychology. In the latter two sections many of the speakers were from the United States, in the Dermatological Section, predominatingly so, Drs. Gilchrist, of Baltimore, L. D. Bulkley, J. Nevin Hyde, Prof. S. Sherwell, Drs. A. R. Robertson and Graham Chambers, adding greatly to the interest of the meetings by a series of extremely able and instructive papers.

An interesting example of the application of general scientific inquiry to cutaneous diseases was a paper on "Blood and Skin," showing the value of opsonic treatment, by Dr. Rankin, of Belfast. It is impossible to close this brief account without referring, however shortly, to the beautiful pathological material sent by Dr. W. H. Watters, of Boston, illustrating the method of mounting specimens employed by him. These were admitted by all who visited the Pathological Museum to be the most perfect examples they had seen, constituting one of the best and most instructive features of the meeting and, judging from the number of requests Dr. Watters received for a description of his *modus operandi*, this method of mounting will largely replace others in British collections.

Truly yours,
R. Cunyngham Brown, M.D.

RECORD OF MORTALITY

For the Week ending Saturday, August 25, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,395	604	Quincy	14	8
Chicago	589	236	Waltham	6	1
Philadelphia	481	175	Gloucester	8	4
St. Louis	—	—	Pittsfield	5	—
Baltimore	217	74	Brookline	8	1
Cleveland	—	—	North Adams	11	5
Buffalo	—	—	Chicopee	11	6
Pittsburg	—	—	Northampton	7	3
Cincinnati	—	—	Medford	4	1
Milwaukee	—	—	Beverly	5	3
Washington	—	—	Hyde Park	7	3
Providence	66	24	Newburyport	—	—
Boston	227	94	Leominster	4	—
Worcester	59	25	Melrose	—	—
Fall River	42	26	Woburn	6	1
Cambridge	18	9	Marlborough	1	0
Lowell	46	22	Westfield	—	—
Lynn	26	—	Peabody	—	—
New Bedford	23	17	Revere	4	—
Springfield	22	8	Clinton	0	—
Lawrence	27	19	Attleboro	3	2
Somerville	25	10	Adams	6	3
Holyoke	15	12	Gardner	—	—
Brockton	10	5	Milford	2	—
Malden	10	5	Weymouth	5	1
Salem	12	6	Framingham	2	1
Chelsea	7	1	Watertown	3	2
Haverhill	17	11	Plymouth	—	—
Newton	4	1	Southbridge	—	—
Fitchburg	—	—	Wakefield	—	—
Taunton	19	12	Webster	—	—
Everett	14	7			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUGUST 22, 1906.

Pettus, W. J., assistant surgeon-general. Granted leave of absence for 13 days from Aug. 20, 1906. Aug. 17, 1906.

Rosenau, M. J., passed assistant surgeon. Granted leave of absence for 14 days from Aug. 20, 1906. Aug. 17, 1906.

Nydegger, J. A., passed assistant surgeon. Leave of absence granted Past Assistant Surgeon Nydegger for 3 months from Aug. 11, 1906, amended to read 1 month and 15 days from Sept. 8, 1906. Aug. 16, 1906.

Cumming, H. S., passed assistant surgeon. Granted leave of absence for 1 month from Sept. 15, 1906. Aug. 22, 1906.

Anderson, J. F., passed assistant surgeon. Detailed as temporary chairman of board convened July 2, 1906, to investigate the origin and prevalence of typhoid fever in the District of Columbia, to serve during the absence of Passed Assistant Surgeon M. J. Rosenau, on 14 days' leave from Aug. 20, 1906.

Hunt, Reid, Chief, Division of Pharmacology. Detailed to represent the Service at the fifty-fourth annual meeting of the American Pharmaceutical Association at Indianapolis, Ind., Sept. 3, 1906. Aug. 14, 1906.

Porter, J. Y., sanitary inspector. Granted leave of absence for 7 days from Aug. 6, 1906. Aug. 21, 1906.

Dunn, James, acting assistant surgeon. Granted leave of absence for 23 days from Aug. 13, 1906. Aug. 16, 1906.

Townsend, F., acting assistant surgeon. Granted leave of absence for 7 days. Aug. 20, 1906.

Roehrig, A. M., pharmacist. Detailed to represent Service at the fifty-fourth annual meeting of the American Pharmaceutical Association at Indianapolis, Ind., Sept. 3, 1906. Aug. 14, 1906.

Goodman, F. S., pharmacist. Granted leave of absence for 10 days from Sept. 10, 1906. Aug. 16, 1906.

Ryder, L. W., pharmacist. Granted leave of absence for 25 days from Aug. 20, 1906. Aug. 16, 1906.

Carlton, C. G., pharmacist. Granted leave of absence for 24 days on account of sickness, from July 9, 1906. Aug. 16, 1906.

Hall, L. P., pharmacist. Granted leave of absence for 7 days from Aug. 17, 1906, under paragraph 210 of the Regulations.

APPOINTMENT.

Lemenuel William Famulener, B.S. (Mich., 1902), Ph.C. (Mich., 1900), M.D. (Mich., 1906), has been appointed Assistant Professor of Pathology in Indiana University. Dr. Famulener was for two years Stearns Research Fellow in Pharmacology under Dr. Cushny at the University of Michigan, and for one year a worker with Dr. Mansen in the Statens Seruminstitut at Copenhagen, Denmark.

SOCIETY NOTICES.

American Electro-Therapeutic Association. — The 16th Annual Meeting American Electro-Therapeutic Association, to be held at the College of Physicians, Philadelphia, Sept. 18, 19, 20, 1906. Fellows and others intending to be present are requested to secure certificate of railroad agent at point of departure in order that cost of transportation may be at the rate of a fare and one third. Headquarters: Hotel Flanders, Fifteenth and Walnut sts.

Mississippi Valley Medical Association. — The annual meeting of the Mississippi Valley Medical Association will be held at Hot Springs, Ark., Nov. 6, 7 and 8, under the presidency of Dr. J. H. Carstens, of Detroit, Mich. The annual addresses will be delivered by Dr. Frank Parsons Norbury, Jacksonville, Ill., in Medicine, and by Dr. Florus F. Lawrence, of Columbus, Ohio, in Surgery.

RECENT DEATHS.

James W. Hawk, a leading veterinarian of Newark, N. J., died on Aug. 29. He was sixty-four years of age, and had practised in Newark for thirty-five years. He was a graduate of Columbia University, New York, and during his professional career held the positions of State Veterinarian of New Jersey and Chief of the Government Bureau of Animal Industry at Washington.

George Mackie, M.D., M.M.S.S., died in Attleboro, Mass., Aug. 31, 1906, aged fifty-six years.

James Anthony Finn, M.D., M.M.S.S., of Roxbury, Mass., died Sept. 1906.

Alvah Burton Dearborn, M.D., M.M.S.S., died in Somerville, Aug. 19, 1906, aged sixty-four years.

BOOKS AND PAMPHLETS RECEIVED.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D. Vol. IV. Chicago: The Year Book Publishers. 1906.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D. Vol. V. Chicago: The Year Book Publishers. 1906.

Removal of the Tariff on Raw Cattle Hides Financially Injurious to the Farmer and not Beneficial to the Consumer. Speech of Hon. Henry T. Bannon, of Ohio, in the House of Representatives. Washington. 1906. Reprint.

Proposed Regulation of the Practice of Medicine and Surgery in Pennsylvania in the Eighteenth Century. By Charles Perry Fisher. Reprint.

Some Points in the Interior Arrangement and Construction of a Building for a Special Library. By Charles Perry Fisher. Reprint.

Um die Weihnachtszeit nach Florida. Von Carl Beck. Reprint.

Ueber eine neue Methode der Deckung von Schädeldefecten. Von Dr. Carl Beck. Reprint.

Clinical Diagnosis. A Text-Book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers, and Practitioners of Medicine. By Charles Phillips Emerson, A.B., M.D. Philadelphia and London: J. B. Lippincott Co. 1906.

The Clinical Significance of Variations of Wrist and Ankle. By Thomas Dwight, M.D., LL.D. Reprint.

Address.

A CONTRIBUTION TO THE CHEMISTRY OF THE BACTERIAL CELL AND A STUDY OF THE EFFECTS OF SOME OF THE SPLIT PRODUCTS ON ANIMALS.

BY VICTOR C. VAUGHAN, M.D., ANN ARBOR, MICH.

(Concluded from No. 10, p. 247.)

Part III.— The Production of Active Immunity with the Split Products of the Colon Bacillus.— Continued.

Immunization with the Non-poisonous Residue of the Colon Bacillus. — I have stated that the portion of the colon cell left insoluble in alcohol after the cellular substance has been heated with a 2% solution of sodium hydroxide in absolute alcohol is non-poisonous. As much as 500 mg. of it may be injected into the abdominal cavity of a guinea pig without visible effect. The temperature does not fall as it does after treatment with the poisonous portion, nor is three any measurable or constant rise. Still the non-poisonous residue must react with certain cells of the animal body; otherwise it would be difficult to explain the formation of an antibody. It seems from our work that the toxicity of a substance for the animal body as a whole, depends upon the function of the cells in the animal affected by the introduced substance. The poisonous group of the colon bacillus seems to have a special affinity for the cells in the respiratory center of the animal, and consequently in sufficient dose it kills the animal speedily; while the non-poisonous part of the same bacterial cell acts upon other cells in the animal, and the function of these cells not being so immediately necessary for the continuance of the life of the animal no ill effects are directly observable. This is an important factor, and deserves farther study.

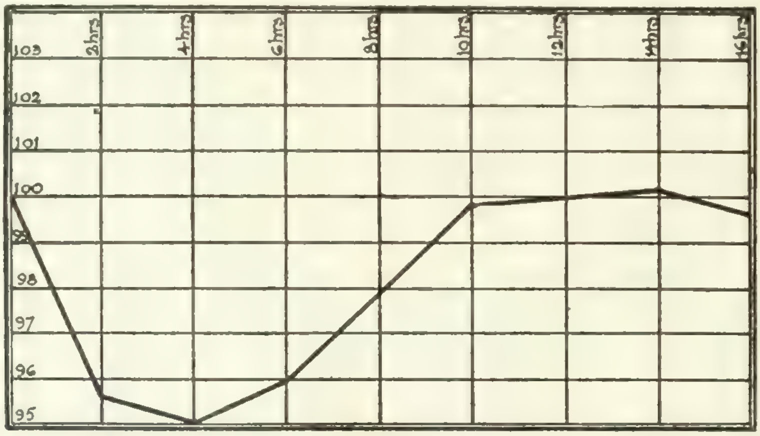
Guinea pigs and rabbits treated with repeated doses of the non-poisonous part of the colon bacillus bear from six to eight times the minimum fatal amount of the living culture. The degree of immunity induced by these treatments depends not so much upon the total amount of the residue given as upon the number of injections and the length of time through which they are continued. There is, therefore, no object in using large doses of the residue in inducing immunity, because smaller doses given through a longer period induce a higher degree of immunity.

The clinical pictures obtained by immunizing animals to the poisonous and the non-poisonous portions of the colon bacillus differ in an interesting way. As has been stated, the symptoms induced in a pig by inoculation with twice the minimum fatal dose of the living culture after injections with the poisonous part are identical with those observed after inoculation of an untreated animal with less than a lethal dose of the culture. But animals immunized with the non-poisonous part and subsequently inoculated with twice the minimum fatal dose of the living culture are very ill within an hour, much sooner than the control, and after from six to eight hours, just when the control begins to manifest symptoms, the immunized animal begins to improve. All this is indicated in the temperature, as shown in the accompanying chart.

On this point one of my students, V. C. Vaughan, Jr., offers the following: " The difference between the behavior of animals treated with the toxic part and those which have been treated with the residue towards cultures of the living germ is easily explained, if we consider the fact that in the first case we are dealing with an animal which has acquired a certain amount of tolerance for the intracellular poison of the colon bacillus as represented by the toxic part. In the case of animals treated with the residue, however, no tolerance for the poison contained within the colon bacillus has been developed. If now the process which takes place in both instances is a bacteriolytic one, it results that in the case of the animal immunized with the toxic group the effects of the poison contained within the bacterial cell and liberated upon its disintegration will not become manifest until a sufficient amount of poison has been set free to overcome the tolerance which the animal has attained during the process of immunization. In the case of the animal immunized with the residue there is no tolerance to be overcome other than that which is present in all animals, and the effects of the poison liberated through bacteriolysis become apparent sooner and to a more marked extent. Again, the fact that bacteriolysis may occur more rapidly in the case of residue pigs than in those immunized with the toxic group might explain, in part, the difference in behavior in the two cases. This is a point on which we are, as yet, unable to give any definite results.

" In order to study the differences in reaction to the living germ in animals treated with the toxic part and those immunized with the residue it is not only essential that they should receive the same amount of the same culture, but the dose given should not exceed twice that which would prove fatal for a control. When a larger amount of the living culture is given the differences are by no means so clearly defined, although even in this case the animal which has been treated with the residue shows symptoms of severity at a much earlier time. As can be seen from Chart V the temperature of a residue pig which had been inoculated with twice the fatal dose of a living colon culture had begun to rise at an interval of six hours after injection. However, if an animal which has been rendered immune by treatment with the residue is inoculated with six to eight times the fatal dose of the living culture, we find that the temperature curve obtained is somewhat different in character. The temperature falls with the same initial rapidity, but instead of showing an early rise it continues for some time at a low point, and it is only at the end of from eight to ten hours that any appreciable rise is manifest. This, we think, is due to the fact that there has not been enough of the bacteriolytic substance directly available to destroy all the bacilli contained in the large amount of culture injected. The remainder of the germs are destroyed by the same factors which are operative in normal animals after the injection of a non-fatal dose of the living bacillus. As can be seen from Chart. IV it is only after an interval of six to eight hours that there is any appreciable fall in temperature in the case of a normal animal inoculated with a non-fatal dose of the living culture. This, we think, indicates that it is not until this time that any appreciable amount of poison is liberated by bacteriologists, since, as we have seen in a previous paper, one of the first signs of the action of the intracellular poison is a fall in body temperature. In a pig which has been immunized with the residue, and subsequently inoculated with a large amount of the living germ, we obtain evidence of hypothermia at a much earlier period, owing to the fact that bacteriolysis takes place very rapidly since the bacteriolytic substance is present in a form available for immediate use. If, however, the amount of this substance directly available is not sufficient to cause death and bacteriolysis of all germs present, those bacilli which remain are still capable of further reproduction. The same mechanism which causes destruction of the bacteria in normal animals, and which is probably connected with the phenomenon of phagocytosis, is, however, still operative in the immune animal. Thus we shall have two influences at work in the immune animal to cause bacteriolysis, one acting rapidly, and the other manifesting its action only after a considerable interval of time. We should, therefore, expect theoretically that we would find in the immunized animal a marked fall in temperature at an early time, due to the setting free of the poison from the bodies of the bacteria disintegrated by the directly available bacteriolytic substance followed by a secondary rise, and a succeeding fall due to the liberation of the poison by means of the factors present in the normal animal. However, this is not actually the case since the effect of the poison liberated at first has not worn off before the second period of bacteriolysis becomes well established. Consequently, the intermediate rise of temperature is absent."

Chart V.



Animals immunized against colon infection with the non-poisonous residue manifest no increased tolerance to the soluble poison, but are quite as susceptible to this as untreated animals are. This indicates that this form of immunity is not due to the production of an antitoxin, but is due to increased capability of the body cells to destroy the bacteria. Whether the bacteria introduced into animals immunized with the residue are destroyed by some bacteriolytic substance increased in amount by the successive treatments with the residue and present in the fluids of the body or by increased phagocytic action, I am not yet in a position to determine with certainty, but I am inclined to the opinion that the latter is the important factor. It seems probable that in some way the phagocytic warfare against the invading bacterial cells is rendered more effective. On this point I hope to have in the near future more positive and convincing evidence.

The immunity induced by the non-poisonous residue differs in yet another important respect from that secured with the soluble poison. We have seen that the latter is not specific, but may be secured with the similar, if not identical, poisons obtained from egg albumin and pepton. On the other hand, the immunity obtained with the non-poisonous residue is specific, and is secured only with the colon residue, and not with residues prepared from albumin and pepton. I conclude from this that the residue contains that group in the colon cell which is peculiar to that organism.

Part IV. — Summary and Conclusions.

I believe that this work which has been done by my students and myself on the chemistry of the colon bacillus and the action of the split products on animals, and which I have briefly outlined in the preceding pages, gives us a glimpse, as it were, of the physiology and pathology of the living cell. You will, therefore, please pardon me if I make an attempt to offer an explanation of some of these things. This will be difficult, somewhat tedious, and more or less unsatisfactory to both you and me. It will be difficult, in the first place, because the subject is a new one, and I shall be compelled to use terms which have been used with other meanings, and the speaker and the listener will be likely to understand the statements differently. However, I will do the best I can. As I have already indicated, I believe that life is molecular; *i. e.*, that the essential phenomena of cell life are due to intramolecular changes. This idea is not wholly original, for, as I have stated, the morphologists, such as Nussbaum, and the physiologists, such as Verworn, have expressed similar conceptions, although both have objected to saying outright that life is molecular, because the word molecule gives one the idea of a relatively stabile compound, while the living molecule is never, for any measurable period of time, at least, in a condition of equilibrium. As I have stated, Verworn has proposed the expression " biogen molecule," but this can be interpreted only as a molecule that produces or induces life. I wish to acknowledge my debt to the very interesting monograph by Verworn on the Biogen Hypothesis, for from this I have obtained many of my ideas, and I intend this statement as a general acknowledgment of this fact, but I will not hold him responsible for my interpretations, with some of which he certainly will not agree.

I believe that the living cell is in its essential and active part composed of a chemical compound of very complex, but of definite, structure. This chemical compound contains a chemical nucleus, which must not be confounded with the morphological nucleus of the cell. The cell is composed of a chemical compound, not of a single molecule. There are many molecules in a cell, just as there are in a speck of salt, and there are as many chemical nuclei as there are molecules. I wish that I knew of some better term to use to designate the part of the cell molecule to which I refer, but I do not. By chemical nucleus I mean the center of the change chemism of the cell molecule; a center of special chemical activity. This, as in all known proteid compounds, contains a benzol ring, and to it numerous side chains are attached. The presence of this benzol ring in the colon cell is shown by its response to the Millon test and by the fact that we obtain aromatic split products, such as tyrosin and indol, by breaking up the cell with strong acids and alkalies. The tyrosin we have obtained in crystalline form, and have positively identified by determining its melting point and by distinctive tests, while we have produced the characteristic odor of indol by heating the cellular substance with strong alkali. We have also shown the presence of a carbohydrate group in the colon cell.

Verworn makes the following statement concerning the functional dissociation of the biogen molecule: " The nitrogen oxide (which exists as a side chain to the benzol ring), as happens in the manufacture of sulphuric acid, splits the molecular oxygen, which is brought to the living substance in the medium by which it is surrounded, and is converted into nitrogen dioxide. The nitrogen dioxide, when brought by the intramolecular movement of the atoms near to the aldehyde (carbohydrate) group (another side chain attached to the benzol ring) gives up an atom of its oxygen, and in this way carbonic acid is formed along with water, lactic acid and other simple non-nitrogenous bodies. The nitrogen, now reduced to nitrogen oxide, remains attached to the benzol ring, and again becomes oxidized to nitrogen dioxide." In this way a nitrogen side chain serves as a receptor and transmitter of the oxygen, and thus the traffic in energy within the living cell molecule goes on rhythmically. It is not to be supposed that the nitrogen side chain, which serves as the receptor and transmitter of oxygen, consists of so simple a body as nitrogen or nitrogen oxide, but it is probably a highly complex nitrogenous body in which the location of the nitrogen is central, as suggested by Allen. Nor is it to be supposed that only oxygen is broken off from the cell pabulum, but substances containing this element. This is the way in which the living cell molecule keeps up its constant, rhythmic traffic in energy, absorbing heat by assimilation and giving it off by dissociation. Each living molecule has not only one, but many, of these nitrogenous side chains that act as receptors, and not only one, but many, carbohydrate side chains that furnish carbon and hydrogen for oxidation. Moreover, the metabolism within the molecule is not confined to the absorption of oxygen and the casting out of non-nitrogenous products of combustion. The whole molecule is labile, and there is probably in every living cell molecule a nitrogenous as well as a non-nitrogenous metabolism. The nitrogen absorbed with the oxygen is utilized in replacing the waste in this element, and the carbon brought into the molecule at the same time is in part detached by the free valences in the carbohydrate side chains and used to repair the loss in this part of the molecular structure. In the cell molecule it is probable that the nitrogenous metabolism takes place much more slowly than the carbon and hydrogen metabolism, and in both it goes on rhythmically, and the tempo with which it proceeds depends upon the swing of the atomic groups that constitute the molecule, and this rate can be changed, hastened or retarded by alterations, either physical or chemical, in the medium in which the cell lives. Under certain conditions all metabolism in certain cell molecules may be indefinitely arrested without disruption of its structure. The cell molecule is then not actively alive, but is possessed of latent life. This is true of spores, seeds and ova. In a seed, as I have already stated, the germ of life, *i. e.*, the molecular structure, is present, but there is no activity, probably because there is nothing in the seed to which the molecular side chains or receptors can attach themselves, but when the seed is placed under suitable conditions the ferment present in the pabulum surrounding the germ breaks up the complex bodies into simpler bodies, which react with the receptors, and active life is awakened. Even when the cell molecule is in active life its food is prepared for it by ferments, and there are many who now believe that every kind of cell has its own special ferment. Be this as it may, it is certainly true that before a cell molecule can use outside matter in its reconstruction that outside matter, or pabulum, must be split up into relatively simple bodies. This is in part accomplished in animals by digestion in the alimentary canal; and in each organ this preparation of the food material is more specifically carried out by ferments supplied by the cells of each organ. It is most probable, indeed it is quite certain, that these ferments have their origin in the nitrogenous metabolism of the cell molecule. Certain side chains are detached from the living molecule, and in solution pass into the surrounding medium, splitting up complex bodies and fitting them for the receptors of the molecule.

I might enter into greater detail concerning the chemistry of the cell and my conception of the way in which it functions, but I am endeavoring to make this statement as brief as possible, and I think than anyone who has followed me so far can get my point of view, which, I take it, is not essentially different from the teachings of Ehrlich and Verworn.

I will now attempt to interpret the results of the investigations on the chemistry of the bacterial cell, and in order to avoid exhausting your patience I will condense as follows:

(1) The cellular substance of the colon bacillus, after being freed from all matter held by it and in it mechanically, consists of a complex chemical compound composed of chemical nuclei with numerous attached groups or side chains.

(2) The chemical nucleus or center of chemism is contained in our "crude soluble poison." When the cellular molecule is split up by means of an alcoholic solution of sodium hydroxide, the molecular nucleus is found in that fraction which is soluble in alcohol.

(3) Since we have obtained similar "soluble poisons" from all the bacteria with which we have worked, also from egg albumin and pepton, I conclude that the chemical nucleus in all these bodies is similar, but not identical. The presence of the benzol ring in the soluble poison is shown by its prompt response to the Millon test. However, the chemical nucleus consists of more than the benzol ring; it contains the benzol ring with the receptor nitrogenous side chains, and our soluble poison also contains the benzol ring with the nitrogenous receptors.

(4) The chemical nucleus has great affinity for other substances containing groups from which it can detach side chains, and for this reason is an active cell poison.

(5) The *modus operandi* of the chemical nucleus as a poison is explainable by its detaching from certain cell molecules of the animal body side chains, upon which the functioning of the animal cell depends.

(6) The intensity of the poisonous action of the chemical nucleus depends in the first place, upon the intensity of its chemism, and in the second place upon the number and condition of its receptors. Our method of detaching the chemical nucleus and rendering it soluble is crude compared with the process as it occurs in the animal body. Five milligrams of colon germ substance thrown into the abdominal cavity of a guinea pig kills, while the smallest fatal dose of soluble poison that we have obtained is 8 mg., representing about 25 mg. of the germ substance. In our crude attempt to isolate the chemical nucleus we have probably destroyed, or at least inactivated, many of its receptors. Our soluble chemical nucleus acts much more promptly than the cellular substance, because we have broken up the cell molecule and set the nucleus free, which process in the animal body goes on slowly, but with less loss. The receptors of the chemical nucleus of the colon bacillus are acid in character and can be neutralized with sodium bicarbonate, but when the sodium compound is introduced into an animal the alkali is replaced by atomic groups, for which the receptors have greater affinity, and these groups being taken from body cell molecules, the neutralized chemical nucleus is a poison with the same action as the free nucleus, but less prompt.

(7) The chemical nucleus of all the bacterial cells with which we have worked, as well as that of egg albumin and pepton, appears to have a special affinity for certain side chains in the cell molecules of the respiratory center of the animal. It tears off these side chains from the cell molecules of the respiratory center, thus interrupting the functions of these cells and causing the death of the animal.

(8) It is probable that the chemical nucleus of every foreign cell, and of every foreign proteid as well, when brought into the circulation in a free state, is more or less of a poison to the respiratory center.

(9) Whether a given proteid will prove poisonous to an animal or not, when introduced into the blood directly by intravenous injection or indirectly by subcutaneous or intra-abdominal injection, depends upon whether or not its chemical nucleus is set free intact and upon the rapidity with which it is set free.

(10) The chemical nucleus of a cell or a proteid does not absolutely destroy the cells of the animal body. It tears off their side chains, and impairs or interrupts their functions. If these side chains be detached from the animal cell molecule slowly and in only a few cells at a time, reconstruction lags behind destruction but little and the life of the animal is not endangered, but when these

side chains are detached, as it were, in mass and from a large portion of the cell molecules of a given organ, then the function of that organ is perceptibly impaired, and it may be completely interrupted, and if this happens in an organ whose continued functioning is essential to the life of the animal, death results immediately.

(11) The chemical nucleus of the colon bacillus, at least, when administered by the alimentary canal, or when introduced into the abdominal cavity enclosed in a collodion sac, diffuses so slowly that it does not visibly affect the animal. It is also, in part, at least, destroyed in the intestine, when taken by mouth. Furthermore, it is possible that the chemical nucleus even of the proteid foods largely passes through the alimentary canal, and is not absorbed at all.

(12) When the chemical nucleus is broken up its constituents are not poisonous, and inasmuch as it is a labile body its conversion into a harmless substance is easy under favorable conditions.

(13) The chemical compound of which the essential part of the colon bacillus is composed is not a poison, or at least not an active poison, until it is disintegrated by the aggressive action of the cell molecules of the animal body. The hemorrhagic peritonitis observed after death from intra-abdominal injection of the colon bacillus is not induced by, nor is it connected directly with, the growth and multiplication of the bacillus, for it is just as marked after the injection of the dead bacterial substance as it is after inoculation with a living culture. The hemorrhagic peritonitis results from the chemical reaction between the constituents of the bacterial cell and certain constituents of the body cells.

(14) That the soluble poison obtained by splitting up the colon cell is the poison that kills when an animal is inoculated with a living culture, is indicated by the following:

(*a*) The effect on the temperature. This is the same whether the animal be treated with a living culture, the dead germ substance or the soluble poison, except in the interval of time that elapses between the introduction of the foreign substance and the beginning of the fall, and when the soluble poison is combined with an alkali this period is lengthened.

(*b*) If with either of these the dose employed is less than a lethal one, the first trustworthy evidence of recovery is a rise in temperature.

(*c*) When a lethal dose is employed, the mode of death is the same; *i. e.*, it is due to failure of respiration.

(*d*) When the soluble poison is combined with alkali and time enough given for the saturation of the receptors with the alkali, the post-mortem findings are the same.

(15) The production of increased tolerance, and the formation of an antibody, should further experimentation show that such a body can be produced, by successive treatments of animals with the soluble toxin, can be explained by Ehrlich's theory, or by a modification of this theory, which I have elsewhere discussed.

(16) Concerning the immunity secured against the living culture by successive treatments with the non-poisonous residue of the colon bacillus, I wish to say a few additional words. This I regard as the most interesting part of our work. It should be remembered that in these animals there is no increased tolerance to the soluble poison, and we must conclude that this form of immunity is due to bacteriolytic or phagocytic action. I have spoken quite at length concerning the chemistry of the bacterial cell, and I assume that the cells of the animal body are made up in a similar manner of living molecules, each of which contains a chemical nucleus with numerous side chains attached. These animal cell molecules split off from the bacterial cell molecules side chains upon which the functioning of the bacterial cell depends, and thus deprive them of life. Now by feeding the body cells with the detached side chains of the bacterial cell molecules the former are sensitized, as it were, to this kind of food, and acquire greater avidity for it with each successive administration. The chemism of the animal cell for these special side chains is intensified, and when the living culture is introduced the advantage is with the body cell the lability and chemical structure of which have been adjusted to the absorption of the side chains of the bacterial cell molecule. This is probably due to some alteration in the chemical structure of the receptor side chains of the animal cell molecule. We recognized early in our work that if we could secure a perfect condition of this nature, enough poison should be set free in a short enough time, when a large amount of dead germ substance was introduced into the abdominal cavity, to kill the animal in the same time that it takes the free soluble poison to kill, and we made many attempts to reach this result. On this point V. C. Vaughan, Jr., in a paper published in 1905, wrote as follows: "Although we have as yet been unable to actually cause death in an immune guinea pig at an early period, the animals are in every instance very ill within thirty minutes after the injection of the dead culture. In fact, several of them have shown signs of the commencement of the convulsive stage, as evidenced by slight convulsive movements of the head separated by considerable intervals of time. We have been unable to secure a fatal result in these animals up to the present time, simply because we have worked with pigs which did not possess a sufficient amount of bacteriolytic substance directly available to cause disintegration of enough bacilli to liberate a fatal amount of poison at one time. It is worthy of note that this behavior of animals immunized with the residue towards the dead bacterial substance furnishes additional proof of the fact that the poison of the colon bacillus is an intracellular one. If the poison existed free in the culture medium, we should expect that the control would show evidence of its action at as early a period as does the treated animal. However, as has been stated, this is not the case. The fact that the treated animal shows symptoms of poisoning to a much greater degree and at an earlier time than

does the control, can be explained only on the ground that the poison with which we are dealing is an intracellular one and is set free only after the disintegration of the bacillus by bacteriolysis."

It seems quite evident that the animal cell molecule does not absorb or destroy the chemical nucleus of the bacterial cell molecule, but when the other side chains are torn from the bacterial cell the chemical nucleus goes into solution. It should be understood that for the body cell molecule to break up the bacterial cell molecule it is not necessary for the two to come in contact in cellular form. Indeed, bacterial cells may be dissolved in body fluids in which there are no animal cells, but I imagine that this is due to ferments that have been formed in the body cells. As we have seen, the more complex bodies in the pabulum are broken into simpler bodies by soluble ferments, and I do not suppose that there is any intramolecular reaction between cells except of substances in solution.

PART V. — BIBLIOGRAPHY.

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Original Articles.

ARTIFICIAL NAUHEIM BATHS IN CHRONIC HEART CASES.

BY PHILIP KING BROWN, M.D., SAN FRANCISCO, CAL.

Several years' experience with artificial Nauheim baths given to a large variety of functional and organic heart cases has developed certain facts which may be of interest, both in regard to the preparation and use of the bath and the results on different types of cases.

With the help of R. R. Rogers, professor of chemistry and formerly assistant in physiology in Cooper Medical College, San Francisco, an effort was made to reproduce as nearly as possible the components of springs Nos. 7 and 12 at Nauheim. A sea salt was obtained, rich in magnesium and potassium chlorides as impurities, and calcium chloride was secured in bulk and repacked in paper cans holding 1¾ lb. each. These cans were previously paraffined by dipping and the covers fastened on while the paraffin on the freshly dipped cover was still soft. This insured protection from moisture. The bicarbonate of soda and acid sodium sulphate combination was used to produce the effervescence. The latter product was obtained in various ways, by boiling Glauber salts with sulphuric acid to obtain an iron free salt and by reheating the waste product from the manufacture of sulphuric acid and adding enough acid to bring it up to the required strength. It is then poured out on lead pans and broken in small bits when cool. This product has the advantage or disadvantage of containing a good deal of iron, which in alkaline solution precipitates in a heavy rust-colored sediment. In this form, it is a component of certain of the springs at Nauheim, but probably has no advantage, and is certainly disturbing from the point of view of cleanliness.

I was led to experiment fully with the production of the artificial bath because of the extremely unsatisfactory productions on the market. The one with which I have had most experience is merely a soda and acid sodium sulphate bath without the chlorides. The acid cakes vary greatly in strength, and keep very poorly. The bath with soda and weak hydrochloric acid, released from small bottles, is also unsatisfactory on account of its unevenness of carbonic acid discharge. With any of the baths, the effervescence is increased by stirring the water with a long-handled wooden spoon. This is necessary, for if the same attendant gives several baths a day and keeps an arm in the water much of the time, the skin becomes much irritated from the calcium chlorides. This ingredient, the "mutter lauge" of the bath at Nauheim, is even there an addition to the water as it comes from the ground or from the receiving tanks. It is a by-product of a neighboring chemical work and is added to the baths by an attendant. It is a difficult substance to handle on account of its irritating and hydroscopic qualities, and in the artificial bath prior to Mr. Rogers's clever device of the paraffined can, it had to be brought in 10-lb. tins specially packed for this purpose. In my experience it is a very valuable agent in prolonging the effect of the bath and should be used in connection with the alkaline effervescing mixtures. Given these essential components of the bath, conveniently packed for use, a graded course of baths may be given, with closer supervision by the doctor and far more careful graduation than at Nauheim and with an incomparably greater convenience to the patient. It allows a use in a wider range of heart cases and, as I have pointed out in a paper for the Association of American

Physicians, in cases where acute heart failure is likely to occur.

In this connection I wish to refer briefly to the work I had expected originally to present to you at this meeting, the use of mustard baths of graded strength and temperature in heart failure of acute infections — particularly the pneumonias of children. The greater ease with which a mustard bath can be adjusted and the similar stimulation to the skin lead me to try mustard baths and packs for the relief of the heart, particularly in bad cases of pneumonia. I am not certain as yet that this bath has any disadvantage as compared with the Nauheim in this class of cases, but as I have not enough cases to warrant conclusions, I shall not report on it for another year. In the meantime it is encouraging to note that Heubner, of Berlin, has tried a similar routine treatment with success.

The cases peculiarly fitted for Nauheim treatment are cases in which the heart muscle acts insufficiently, either from dilatation, poor blood supply to anemias or arteriosclerosis with changes in the muscle-poisoning, acute or chronic, and notably tobacco poisoning, and fatty changes of moderate degree.

The following cases illustrate the effects of the treatment:

Case I. P. K. B., aged thirty-six. Palpitation and intermission, following severe diphtheria, augmented by the use of tobacco. At the time baths were begun, tobacco had not been used for a month. The heart was, nevertheless, omitting every third or fourth beat and the rate was between 90 and 100. Blood pressure 120, with Stanton machine. Digitalis had been tried, with the effect of steadying the heart somewhat, but its withdrawal was followed by a return of the rapid action and intermission. Two courses of Nauheim baths were given, a ten days' intermission between them, twenty baths in each course. In the first series, resisted movements followed the baths twenty minutes. In the second series they preceded the bath. After the first five baths the heart would frequently beat 50 or 60 times without any intermission. The rate for some hours after treatments fell 15 to 20 beats, reaching normal at the end of the fifth bath. From that time on, pulse varied from 72 to 82, being brought down sometimes to 68 after treatment. The second series of baths was carried out in order to study the effects of movements given before the baths. In this particular instance, it was shown definitely that resisted movements had quite the same effect as the bath, but upon evenings that they were not followed by the bath, the effect upon the heart was not as lasting by several hours.

A year has passed since the first treatments, and during that time, although smoking has been resumed in moderation, the heart has never been intermittent. The second series of baths, just completed, showed a uniform rise of 10 to 12 mm. in the blood pressure after the bath. The heart rate, which had never been much above 80, was improved so that it remained most of the time in the seventies.

The exhaustion after work which preceded the first baths and which had begun to show itself, was relieved. The chart of this case was lost.

Case II. G. B., aged forty-seven. History of excessive use of alcohol and tobacco, long continued sedentary habits, obesity, unrecognized pleural effusion after pneumonia, requiring subsequent operation for removal. Heart rhythm fetal in character. Extreme pain and dyspnea on slight exertion. Diagnosis, fatty infiltration of heart. The effect of the baths is indicated on the accompanying chart, the diagram showing the pulse before and after treatment. Resisted movements were given before the bath. Patient, a year and a half later, without further treatment is very comfortable. On the Von Noorden anti-obesity diet he lost 40 lb.

Case III. J. W. W., aged sixty-four. Suffering with advanced myocarditis, general, arteriosclerosis, subsequently developing intermittent claudication, and finally died of general cerebrospinal "softening" manifested as a progressive paralysis. Under my care he had one severe attack of tachycardia. Following this the pulse, which had been in the nineties before, ranged above 100 despite the administration of small doses of digitalis. Nitroglycerine with it had no effect upon the pulse. The administration of even moderate doses of digitalis seemed to make the pulse worse, as indicated by the chart. The result of the Nauheim treatment is indicated in this case by the morning and evening pulse, the records of the immediate effect upon the pulse having been destroyed. The patient, who had been bedridden for more than two months, was sitting up in two weeks and walking in less than three. Overdoing led to an acute return of symptoms a month later and the symptoms of softening followed rapidly. The case is presented as illustrating that even in extreme advanced myocarditis benefit can be obtained from the baths, although in such cases they must be given with extreme care.

Case IV. J. I. S., age fifty-eight. Diabetes of six years' standing. General arteriosclerosis, with heart and kidney changes. Extreme exhaustion from ordinary work. The record of the first nine treatments was lost and the subsequent record does not show as strikingly the immediate effect of the bath on the pulse, which prior to that time had been often 110 or 120. It suffices, however, to show that the effect of the bath was to bring the pulse down into the seventies, and so gratifying was the result to the patient that during the latter years of his life he took the baths himself whenever he felt overtired. The black vertical lines on the chart indicate the days or periods that the baths were omitted and frequently on these days the patient overexerted himself, and it will be seen that on the following day the pulse was usually much higher than on the day that he received a treatment. Death in this case resulted from diabetic coma, following acute articular rheumatism.

Case V. Mrs. M. G., aged sixty-six. History somewhat the same as Case IV, except for the addition of cardiac pain on any exertion. The chart here indicates the rapid effect of the bath, the progressive benefit during the ten days in bed and the sustaining of the better pulse during the period of activity that followed. This patient was seen on April 16, 1906, one year after the treatments, with a return of the pain and rapid heart action. Treatment was interrupted by the earthquake.

Case VI. Mrs. M., aged fifty-seven, illustrates simply the greater benefit that followed the giving of resisted movements twelve hours after the bath. The first part of the chart indicates the pulse right after treatments, in which the movements immediately preceded the bath. The case was one of advanced myocarditis, which had been benefited six months previously by treatments similar to the first of the series indicated in this chart.

Case VII. A. B., aged thirty-seven. Over-weight, fat infiltration of cardiac muscle, dyspnea on slight exertion, bad palpitation. Overwork. The baths in this case were given to enable the patient to continue the necessary work. For two months following them, the patient was able to continue her work without the discomfort experienced before.

Case VIII. Mr. C., aged forty-four. Arteriosclerosis, locomotor ataxia, palpitation, extremely poor heart tones. In this case the patient was given Frankel movements for a bad ataxia instead of resisted movements. These movements were much more taxing than resisted movements. The chart shows the effect of the movements judiciously given on the pulse. In almost every instance they lowered the pulse, which was still further lowered by the bath.

This form of treatment of locomotor ataxia I have given to a number of cases, and while the Frankel movements need no further commending from me, I wish to add that the treatment combined with the bath has served an excellent purpose in relieving a great many of the symptoms of this disorder. I refer particularly to the spasmodic muscular contractions which are sometimes very painful. It seems likely that the improved circulation is responsible for the benefit.

Case IX. J. F., aged fifty-seven. Advanced case of arteriosclerosis, with extensive changes in the heart muscles and some renal changes; marked irregularity in the rate and force of pulse and frequently 20 beats in 100, not registered at the wrist. At the time I saw this patient, he had been four months in bed, on all manner of heart stimulants, and had had four attacks of acute dilatation with delirium cordis. In the last of these attacks, he fell into my hands. The early record of the baths I regret I did not keep. At that time his pulse was 120 to 130 when counted with a stethoscope; about 90 at the wrist. This patient now, nearly a year later, is able to be about and to take light exercise. The heart is still extremely irregular in rate, but the muscular insufficiency is not accompanied by any subjective symptoms. In this case, as in a good many others, the baths were frequently followed by an hour or two of quiet sleep and for the first time the patient was able to do without hypnotics; the use of opium in such cases as this I cannot commend too highly, particularly in the beginning of attacks that result from over effort of the heart.

Case X. Mrs. E. S. H., aged sixty-seven, was seen after a year of intermittent rest and drug treatment for paroxysmal tachycardia due to sclerosis of the aortic arch and aggravated by emotional and gastric disturbances. This patient had twenty baths, not always with the desired result, owing to indiscretions of diet and to emotional disturbances that I could not control. An attack of tachycardia lasting twenty-four hours enabled me to try the bath as a means of shortening it. I had given her, in one previous attack, digitalis and nitroglycerine without perceptibly influencing the attack which lasted two days. The attack treated by the bath was shorter than the previous one, but the bath itself seemed to increase the pulse action slightly. Two things were interesting in the case: First, the doubling of the pulse in tachycardia, a fact which I also observed in one other case where the pulse raised from 70 to 140 in one attack of fifteen minutes' duration, and to 280 in an attack an hour or two later. The second interesting observation is that although the patient was having two or three of these attacks a month prior to the baths, she has had only one in the five months since. This I attribute largely, however, to more attention paid to the diet.

Two cases are cited to show some of the limitations of Nauheim treatments.

Case XI. F. F., aged thirty-eight. Chronic interstitial nephritis, hydrothorax, hydropericardium, general anasarca. All internal medication without avail. The patient seemed to me slightly better for a day or two following the first treatments with exercise, but despite the most judicious care in administering the treatments and with close attention to saving his strength by lifting him in and out of the tub, no benefit whatever resulted from the treatments.

Case XII. Mr. J., aged fifty-eight. Mitral and aortic regurgitation, extreme hypertrophy. Entered the hospital for cough, due to edema of both lungs. Baths were given on three successive days, and then a fourth one after the intermission of one day. The chart indicates the effect upon blood pressure and pulse. The patient was not in the least benefited by the baths and died from pneumonia five days after they were discontinued.

It is impossible to cover all the points one might wish to in a recital of such cases as these, but there are several things that are quite apparent.

On one point in particular I will speak emphatically, inasmuch as the American medical press has contained several articles recently on the subject, *viz.*, the use of resisted movements with the Nauheim bath.

Any one may satisfy himself fully that judiciously given resisted movements lessen the pulse rate in patients without temperature, but with rapid heart action, except possibly in extremely advanced cases of interstitial myocarditis.

I do not think that the resisted movements are essential and they are certainly not as lasting in their effects as is the bath. They are often very tiresome to the patient and are dangerous in bad cases unless given by a person who understands fully the purposes of them and who realizes that every case is a law unto itself. As a rule, in my experience it has been best to give them an hour or two before the bath. When this is not possible, I have found it wisest to wait a number of hours after the bath.

On the subject of massage in connection with the treatments, I can only say that I have found it of advantage, particularly when the temperature of the bath was below 90, in securing a prompt re-action from the sensation of cold, which patients with sensitive skins frequently have, as a result of the stimulation of the skin. It is necessary that patient be put back into a warm bed and that the attendant should take pains to rub the extremities vigorously and even the body, if there be sensation of cold.

SYSTEMIC INFECTION THROUGH THE TONSILS.*

BY J. L. GOODALE, M.D.

The laryngologist is frequently asked to examine patients with the object of determining whether the condition of the throat is responsible for a given disturbance of the system. Experience has shown that certain alterations of the tonsils may occur in association with other local or general diseases in such a way as to afford reasonable grounds for assuming an etiological connection.

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It becomes the duty, therefore, of every one who investigates this region to be able to make his examination with an intelligent appreciation of the phenomena involved.

The object of the following paper is to recapitulate the present extent of our information relating to systemic infection through the tonsils, and to indicate some gaps in our knowledge which remain to be filled. Certain things we know, others we may assume, others still we cannot, at present, satisfactorily explain. With regard to matters of established demonstration, we may enumerate the following phenomena:

We know, first, that polynuclear leucocytes are normally entering a crypt through its loose lining mucous membrane, and entering upon the work of phagocytosis. Second, it has been shown that even inorganic particles and fluids are continually entering the tonsillar tissue from the crypts, and passing in the direction of the efferent lymph channels. Third, bacteria may always be found in numbers in the crypts, but can rarely be demonstrated in the tonsillar tissue proper.

We have here, therefore, three established observations, namely: emigration of phagocytic leucocytes, the penetration of inorganic or, at least, non-living matter, and the arrest of the lacunar bacteria at the lining mucous membrane. In economic terms we might say that there is an outward passage of emigrants, an admission of merchandise, and a turning back of undesirable foreigners at the port of entry.

Passing next to matters of assumption, it seems probable that the secretions of the mouth compose largely the fluid borne away from the tonsil to the adjacent lymph glands.

The tonsil resembles essentially a lymph gland in the arrangement and composition of its units of structure, but differs from the lymph gland in the absence of true afferent lymph channels. Although the tonsil possesses no true afferent lymph channels, yet in view of the passage of fluids from the crypts through the mucosa to the base of the organ, and thence into the general lymph stream, one may regard this course as physiologically replacing the afferent channels of the lymph gland. In other words, it is probable that the fluid borne away from the tonsils in the efferent lymph channels has entered the organ through the epithelium of the crypts as truly as fluid leaving a lymph gland has come to it through the afferent channels.

The emigration of leucocytes from the tonsil into the crypts against this inflowing stream of buccal fluid seems most reasonably explained by a positive chemotaxis. In other words, leucocytes are attracted by some agent in the crypts. This hypothesis is supported by the phenomenon which may be seen in acute proliferative tonsillitis. In this condition, the pathogenic micro-organism may be found in great numbers in the crypts, which are distended with polynuclear leucocytes, actively engaged in phagocytosis. In the vicinity of the crypts, the tonsillar tissues exhibit the familiar appearances of proliferation, characteristic of an absorption of toxin, and it seems reasonable to expect that the increase in the number of the phagocytic leucocytes is due to an increased chemotaxis excited by an increase in bacterial activity. In spite, however, of the enormous number of micro-organisms in the crypts, under such circumstances, the penetration is sharply limited by the lining epithelium.

In a most interesting and suggestive paper, published in the *New York Medical Journal*, Jan. 6, 1906, Jonathan Wright has speculated as to the nature of the agencies which permit the entrance of dust into the tonsillar tissue, but arrest the entrance of germs. Whether the difference arises from negative chemotaxis in the case of bacteria or from the viscosity of their surface, or from their destruction by body fluids or by phagocytosis, we cannot at present say. We may simply note that ordinarily bacterial invasion stops at the mucous membrane of the crypts.

With these facts in mind, let us proceed to consider how the tonsils may constitute a portal of entry for sepsis.

Obviously, bacterial products may readily be taken into the system through this channel in the same manner in which the buccal fluid is probably constantly absorbed. All that is necessary is that a given toxin shall come into contact with the epithelium of a crypt. The resulting phenomena will depend upon the intensity and character of the toxin and upon the length of time which it remains in contact with the mucous membrane. The toxic symptoms will, therefore, be acute or chronic. Of the former the most familiar example is afforded by acute tonsillitis, where the bacteria multiply in the crypts, producing toxins as in a culture tube for a certain number of days, when their activities are suddenly brought to a close.

Chronic absorption of bacterial products occurs where the crypts contain the whitish decomposing masses which have undergone retention. Where the orifice of the crypt is narrowed by contraction of the mucous membrane, or by adhesions of the pillars in the vicinity, free egress from the lumen is restricted, and its contents accumulate. The migratory leucocytes and desquamated epithelial cells collect in the crypt and, with the admission of putrefactive bacteria, undergo decomposition. After the mass has reached a sufficient size, a widening of the orifices may be effected, and through the contraction of the faucial muscles, the mass may be expelled into the mouth. Such conditions of lacunar retention are well-known agents in lowering the tone of the system, but I think sufficient emphasis has not been laid upon the frequency with which they may occur deeply situated in the tonsil, so as to be readily overlooked. In several cases, I have found a crypt to be dilated near its base, containing fetid puriform fluid, although its existence was discovered only after excision.

Such conditions of chronic absorption of bacterial products may occur in the small or nearly atrophied tonsil, as well as in the hypertrophied one. It is easy to see how the normal process of retrograde metamorphosis may effect an irregular contraction of the framework of the tonsil, with the result of narrowing one or more lacunar orifices, and the production of a bottle-shaped condition of the crypt. We may say that excision of the tonsil should be recommended not only if the tonsil is large and causes pressure symptoms, but also if faulty drainage exists, and symptoms of absorption are present. In the latter case, the size of the tonsil plays no part in our decision as to the advisability of operating. Our guide in reaching this decision is the discovery of lacunar retention in association with symptoms of toxic absorption.

We have so far discussed the conditions arising from the absorption of bacterial products into the system. As I first pointed out, bacteria themselves probably enter the system only rarely through the tonsil. Nevertheless, they are known to do so in certain instances, and such a penetration is probably more frequent than has hitherto been suspected. I have found a definite infection of the tonsillar tissue itself by pyogenic micro-organisms in certain cases of acute tonsillitis, where it was possible to demonstrate cocci and abscess formation in the center of the follicles themselves. After infection of the follicles has once occurred, the abscess proceeds to enlarge, and most frequently discharges into the crypt, but at times may rupture in the opposite direction, namely: into the efferent lymph channels, and give rise to circumtonsillar abscess.

Frequent instances of bacterial invasion of the system through the tonsil are tuberculosis and infectious arthritis. I have seen numerous cases of tubercular cervical adenitis where the tonsils were of normal size and appearance, and yet inoculation of the tonsillar tissue into guinea pigs was followed by tuberculosis of the animals. Whether in these cases the tubercle bacillus had produced local lesions in the tonsillar tissue which escaped observation or whether it was vegetating in the crypts without formation of tubercles remains to be determined.

Evidence is accumulating in the case of infectious arthritis, that the tonsil forms a frequent portal of entry, yet the tonsil in a given case may be of normal size, and show nothing on clinical inspection, although after excision, I have always been able to find evidence of lacunar retention. It is probably not necessary, therefore, that the organism of this disease entering the system through the tonsil should create local reaction in this structure. It would seem probable that a condition of faulty drainage from the crypts would afford a given infectious organism better opportunity to remain in contact with the lacunar epithelium, possibly multiplying upon the detritus there found, and upon a favorable opportunity of becoming drawn into the tonsillar tissue with the current of buccal fluid.

THE PROBLEM OF VENEREAL PROPHYLAXIS: SOME REMEDIAL SUGGESTIONS RELATING TO IT.

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THE time appears to be ripe for positive steps to be taken in the direction of systematic and scientific prophylaxis of venereal disease. Through the efforts of men and women of energy and persistence, that other universal scourge, tuberculosis, has been taken in hand, and to all observers it must be apparent that considerable headway has been made in the fight against this devastating disease. Already the public has learned the dangers of tuberculosis, and what is still more important it has also learned how the disease spreads and how its further extension may be prevented. Making due allowance for the differences in the character and manifestations of venereal diseases and tuberculosis, we can and we must adopt similar measures in any attempt to diminish the far greater ravages of the diseases of venery; and the methods that have been productive of success in the fight against tuberculosis will likewise succeed in the campaign against these social diseases.

In order that we may have a proper view of the matter in hand, let us briefly consider the conditions we have to deal with. As medical men, let us first of all eliminate entirely all questions of morality. This is of the highest importance. Let us deal with medical and social conditions as we find them, not as they ought to be in an ideal community; for if we adopt a wrong point of view, we create for ourselves a wrong picture, a picture that does not easily lend itself to our aim and purpose.

It goes without saying that first and foremost in any discussion of venereal disease, is the subject of the "social evil," so-called, or prostitution regarded as an existing institution. Let us begin by admitting now and here that prostitution is a well-established condition, and not a theory; that it has been with us from time immemorial, and that it promises to remain with us until time shall be no more. Medical men cannot deal with its causes; we have only to deal with its consequences expressed in the form of disease.

The relationship between venereal disease and prostitution need not be demonstrated; if we could, with one blow, remove the latter from the social economy, a large and preponderating element in our problem would at once disappear. But the social evil is an economic and not a physical disease, — a disease that social and economic conditions produce. It is, therefore, the duty of our statesmen, our clergymen, our social economists to deal with the causes that encourage prostitution, just as it is our highest moral duty to bring to their aid our knowledge of the medical conditions which result from prostitution. Working together, there is no reason why satisfactory results cannot be attained.

The problem of venereal prophylaxis is based primarily on the fact that man is endowed by nature with animal passions which are, to a greater or less degree, subject to control by the individual. Society, recognizing the dangers of the promiscuous gratification of these passions, seeks to regulate them by the institution of marriage, and we may safely say that in an ideal community, where early marriage and a healthy moral tone were the rule and not the exception, the problem of venereal prophylaxis would not, yes, could not, arise. In existing conditions, however, early marriages are becoming more and more rare, and even the institution of marriage itself is being seriously threatened by the ever-increasing cost of living, the growing standards of living and the difficulties encountered in earning enough to meet these constantly growing demands. This brings into our discussion the crux of the problem, — the unmarried man and woman, deprived by these economic conditions of the opportunity of gratifying a natural passion according to the established laws of society; illicit sexual relations necessarily follow.

Girls and unmarried women suffer even more than men do, from these conditions. The number of unmarried females is constantly growing; they are thrown upon their own resources, often in competition and association with men, and — only the strong survive. The weak fall by the wayside, and are trampled upon by the hordes in their wake. In this way, prostitution secures its recruits, and the venereal diseases thrive.

Whenever the social evil has been discussed, it has been the fashion to direct our thoughts almost entirely upon the unfortunate women engaged in this occupation as a means of livelihood. The male element in the equation has always been overlooked. Segregation, ostracism, imprisonment in jails and hospitals, and virtual extermination itself have been proposed as remedies, the advocates apparently believing that the women are vicious criminals, and forgetting entirely that they are merely passive agents in what society terms the immoral act. We may wipe out every trace and vestige of venereal disease among the women of the universe, but so long as one man remains with an infectious venereal disease and a strong sexual appetite, we shall still have with us the problem of venereal prophylaxis. Our attack must, therefore, be directed at both sexes, and principally, in my opinion, at the male sex.

I believe that the professional prostitute should not be considered by law or society, as a vicious criminal, even though she wear the stigma of the law; I believe she does not engage in the occupation from choice, but from dire necessity; and that she is not a complacent agent in the transmission of disease. Let us feel that there was a time in her life when she, too, had ideals, and hopes, and ambitions, not different from those of the rest of the world's women, but that she fell in the struggle for existence, a victim of social conditions and human passions. Let us consider her unfortunate, not criminal, and let us deal with her as such. This will make the solution of our problem much less difficult of accomplishment.

We must feel the same way toward the vast army of clandestine prostitutes, — girls and women, who, for the pleasure they find, or for the finery and luxuries which they could not otherwise enjoy, submit to the embraces of their clandestine "lovers." This army is recruited in the factories, shops, business offices and the stage, — wherever, in fact, earnings are small and tastes in the matter of clothes and entertainment are in inverse proportion thereto. These girls are not necessarily bad. Most of them are simple-minded and untutored, and often ignorant of what they are doing and the risks they are running; their knowledge comes to them too late. They harbor a large amount of venereal disease unknowingly, and constitute a very positive danger to the community, for they take no measures to avoid disease, and do not recognize the fact that they are diseased until it is too late to prevent considerable damage to themselves and to those who cohabit with them.

Faithless married women are also to be classed with the latter as real dangers to the community, for they disseminate venereal disease to an astonishing degree, not only infecting their paramours, but often their innocent husbands and children as well.

Let us now consider the males involved in our equation. We have to deal, on the one hand, with the *roué* or libertine and, on the other, with the occasional patron. With the former we need not waste much of our time. He is beyond our reach and nothing that we can say or do will have much if any effect on him. He is the battle-scarred veteran of many an encounter with venereal disease, and he has become practically immune. What remains of his scars he has little regard for, — he has had them so long. His morning friend, the *goutte militaire*, is an old friend, and never deserts him. He feels none the worse for its presence; neither do his female companions who, like himself, are more or less immune to fresh infection.

It is the young man of fifteen to twenty-five, the occasional patron who seeks the unlawful embrace because of the demands of nature, whom we have to consider. This is the young fellow who comes to us with his virgin attack, horrified by the chancre or the urethral discharge. His knowledge of venereal disease is absolutely *nil*, or extremely limited and perverted; he swears a big oath that he will never again indulge in the prohibited embrace. He has heard on the streets that sexual congress is necessary for his health and well-being, and it is hard for him to understand how it happens that the fountain of health can be lined with the germs of foul disease. Every new development of the disease opens his eyes to the dangers he has been subjected to, and he wonders that he was not attacked sooner in his career.

To say that this young fellow is a criminal well punished by nature for his indiscretions, and to treat him as such, is preposterous. He must be dealt with as an ignorant youth, who knew not the dangers he was courting in what he thought was an act demanded by nature. To my mind it is the fault of society that he did not know the risk he was running. Surely it is his misfortune; and we might safely assume that had he known the serious consequences of his act, he might have found strength and courage to resist the cravings of his sexual organs.

We may, therefore, safely sum up the situation in this wise: Prostitution as a *moral* question is beyond our province, as it is beyond our powers; that we have to deal with professional and clandestine prostitutes, who are, in great part, infected with venereal disease, and who transmit it to their patrons; that men seek the unlawful embrace without vicious intent, but because of nature's demand; that the common street education of young men teaches them that it is unhealthy to abstain from sexual intercourse; that young women, in all classes, but especially those who are dependent on their own efforts for a living, are pursued and fall, victims to the temptations of men; that they are soon infected with venereal disease, that they in turn infect others, and thus the endless chain grows.

Now, is there a remedy that we can apply to this scourge? Suffice it to say, that, next to tuberculosis, and, possibly, not excluding it, venereal disease is the most serious problem with which society has to contend. From the medical, political, social and economic points of view, venereal disease looms up as the greatest of all terrors to society, — a terror not only to him who has been infected, but to all with whom he comes in innocent contact, and even unto the generations that follow him. It is for this terrible state of affairs that we are seeking a remedy.

It seems wise to direct our attention to the two great divisions of the subject, and study them separately: (1) Professional and clandestine prostitution, the "social evil," so-called; (2) the male element of our population, without whom prostitution could not exist.

1. As to the social evil: Many take the view that the entire matter of venereal disease is included in the term "prostitution." I am strongly opposed to this view. I am convinced that if it were possible to wipe out the institution of professional prostitution, and all the unfortunates who live by it, we should still have the problem of venereal disease to deal with, and the situation might, very likely, be far more serious in its nature than it is to-day. Prostitution is, after all, a safety valve for society. Society created it, society must tolerate it and society must minimize its ravages. Prostitution is, however, but one single element in the problem we have in hand, but being the most prominent and most easily approached, we are apt to condemn it as being the source of all our ills. I do not defend nor advocate prostitution when I say that it will never be done away with, and that it would be a most unwise thing to do, granting that it could be wiped out. We must recognize prostitution as an essential element of modern society, — an institution that has become as much a part of civilized life as marriage.

In many parts of Europe, prostitution is recognized by the government, and dealt with in various ways, with more or less success. Segregation and regulation are the prevailing methods of dealing with this question. In American cities, however, we close our eyes to its necessity, bury our heads in the sands, and loudly proclaim, so all may hear, that prostitution is a crime and all those who are involved in it are criminals. Meanwhile, those engaged in the traffic go about their business, more or less secretly, without supervision or control, and spreading actual disease and moral disease wherever they find a congenial soil.

We thus permit the traffic to go on in a spirit of hypocrisy, enshrouded in darkness, and admirably serving the purpose of enabling public officials to enrich themselves by exerting petty blackmail and extortion upon the wretched women of the craft. From time to time, a wave of reform sweeps our cities, and well meaning men and women assume the task of ridding the town of vice. We know, from experience, that they simply aggravate the conditions, for they disturb the traffic, and disseminate it to hitherto uncontaminated sections. What is accomplished by these waves of reform? Experience has shown that the police officials are the greatest gainers. They raise the rates for protection and get more blood money out of their helpless victims. These remarks and views may seem much out of place in a medical article, but I am convinced that they have a decided bearing on the question under discussion. We must expose the naked truth at all costs, if we would be true to ourselves. Our treatment of prostitution in American cities, especially New York, has been and still is a farce, to say the least, because we do not exhibit the courage of our innermost convictions. Not only are the women of the street unrestricted as to residence, but they carry on their illegal traffic without any supervision of any kind, except such as is afforded by the "protection" which they pay to the local statesmen and public officials. This "protection" apparently renders the traffic legal. Howard A. Kelly calls our method a "disastrous failure," and we cannot but heartily agree with him; on the other hand, official *réglementation* and supervision have been shown by recent observers to be equally unsatisfactory, for obvious reasons. Its advantages are more than offset by its disadvantages.

How, then, shall we treat this sore on the body politic? Perhaps the latest utterance on this subject at this writing is the remarkable paper of Dr. H. A. Kelly in the *Journal of the American*

Medical Association (Feb. 10, 1906). His answer to this question is summed up in these words: "A remedy there is, but it is not an easy remedy. It is of a drastic nature and acts on the whole system in order to purge this sore, cleansing the body of many noxious humors and sending good, sound blood to the spot. This remedy is a sense of personal responsibility which manifests itself under the form of an active aggressive interest in this as well as in other forms of *right doing*, by carrying on an unremitting personal campaign against them, wherever and under whatever guise they may be found. A *high standard* of *morals* must be maintained in *every avenue of life*, for nothing is more certain than that this impurity cannot be removed or even lessened, while the *business* and *social life* of the community remain *corrupt* in a *thousand different ways*.[1] . . . We do not need knowledge, as some of us imagine; we need transforming, regenerating power from without to enable us to accomplish that which our corrupt tendencies continually hinder. For this reason my own hope lies solely in God, and in prevailing on men to look to Him for grace and strength to do that which they cannot of themselves accomplish."

One must needs be brave indeed, and arrogant as well, to offer even the slightest opposition to the views of so eminent a member of our profession as Dr. Kelly; yet, in all humility, it appears to me that Dr. Kelly's remedy is a Utopian one, and does not reach the spot. Dr. Kelly seems to forget that we are *not* living in the millennium; "right doing" as a general rule of life has *not yet* become a fad; a "high standard of morals" is *not* maintained in every walk of life, nor even in some walks of life; the business and social life *are* "corrupt in a thousand ways," as has been demonstrated by the muck-rakers and others.

Surely, Dr. Kelly's remedy, if adopted by the world at large, would solve the problem of prostitution and kindred ills, and it would also solve many other difficult problems. It would render jails and prisons useless, for want of occupants; it would depopulate our almshouses and our asylums; it would settle all problems of trusts, rebates and traffic rates and impure foods, better than any legislation can hope to do; it would render a mortal blow to socialism and other isms with which we are afflicted; in short, it would revolutionize mankind, and make the race as nearly perfect as the human mind can conceive. But can we hope to see so revolutionary a change in human thought and action? The church and state have failed these thousands of years to create that feeling of "*right doing*" and the high moral tone that Dr. Kelly hopes to see created. Can we hope to do in our day that which church and state have failed of accomplishment these many centuries? Let us rather attempt to do that which appears to be possible, even though the methods that must be adopted jar on our tender sensibilities at first sight. Let us accustom ourselves to the thought that we are dealing with *existing conditions* and with *human beings* of the *present day;* let us recognize their weaknesses and their passions. I am sure, if we do this, ever at the same time striving to inculcate habits of right doing and high thinking, we may reach the goal we have set for ourselves. In other words, LET US BE PRACTICAL.

In the siege of a city, the first aim of the attacking forces is to completely surround it, and then compel a capitulation by starving its defenders, at the same time conducting a series of assaults from various points of vantage. I propose in dealing with our problem of prostitution, that we adopt similar tactics. Conceding that we cannot wipe out prostitution, our first aim should, therefore, be to bring the forces of evil, as we understand them, into a well-defined area, and then, by a carefully drawn plan of campaign, reduce their numbers and effectiveness by minimizing their patronage, and thereby diminishing their capacity for harm. Let it be distinctly understood that I am not advocating or proposing a scheme of official supervision and regulation of the social evil. I am opposed to this Continental idea, because it is foreign and repugnant to American sentiment, and because it does not accomplish its alleged purpose. I do, however, believe that unofficial segregation and a treatment of the evil by common sense methods will not only be found to be practical but effective as well.

I propose that we fling away our mask of hypocrisy and sham modesty, and look upon this question with open eyes and a frank mind. Our first step is to change our attitude towards prostitution. We should regard prostitutes not as criminals, engaged in a criminal traffic, for which they are to be "bled" and exploited, but as unfortunate members of the social fabric, — social lepers, if you will, engaged in an unclean traffic made necessary by social and economic conditions, — a traffic which by its very nature requires that it be conducted in such a manner as not to assert itself in public, and conducted so as not to constitute a menace to the physical and moral welfare of the community. The fact that a woman is a prostitute should not *per se* constitute a cause of legal action against her. I advocate such a treatment of prostitutes by the community as will permit them by *common consent* (*not* by official legislation) to live unmolested in certain well-defined sections of the city, so long as they conduct their traffic without maintaining a public nuisance. Soliciting, disorderly conduct, boisterous noises, etc., should constitute the *only* cause for police interference. This rational policy would at once remove the opportunities for official extortion and graft, and would encourage an orderly conduct of the traffic. In other words, eliminate the power of persecution which is now enjoyed by the police. Left to an enlightened public sentiment, the traffic would soon become localized completely, quarantined, in fact, in a well-defined district, a district that would harbor all the members of the craft, without fear of contamination of the innocents beyond its borders. Once this result was attained, a dead-line, such as exists at present in the financial district, as regards well-known thieves and suspicious characters, would be created, outside of which it should be made impossible and unprofitable for the traffic to extend. To solicit or to conduct the traffic of prostitution beyond the "dead-line" should be made punishable by a long term in prison at hard labor. Fines should not be imposed. In brief, I propose that the community deal rationally with these unfortunate women; so long as they live in retirement in their own district, and conduct their traffic without disturbing the public peace, they should be let alone, but if they should pass beyond the "dead line," or in any other way become a public nuisance or menace, they should be made to suffer the severest penalties that the law can inflict. In this way, I believe, we shall be able to localize the evil, without official sanction, thus conforming with the Anglo-Saxon idea of not giving legal recognition to the existence of prostitution, and at the same time eliminating this most profitable form of graft.

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[1] Italics not in original.

When it becomes known to those engaged in the traffic that so long as they abide by these unwritten laws they will not be interfered with, they will quickly conform with the requirements of the situation, and conduct themselves in an unobjectionable fashion. Self-preservation will dictate medical supervision and personal care, such as is rendered impossible under existing uncertain conditions; the law of the survival of the fittest will insure that only those who are physically well, or nearly so, be permitted to continue in the traffic, and thus the evil will bring about its own antitoxin and cure.

Having succeeded in concentrating the evil in a well-established district, let us now devote ourselves to the task of diminishing its patronage by such means as can be utilized. In other words, we have reached our consideration of the public.

Education. — This should be the cornerstone of any attempt to minimize the extent of venereal disease. Educate the men, young and old, to the dangers of professional and clandestine prostitution, and the fight is half won. Educate the women, young and old, and clandestine prostitution will receive its deathblow. Educate the rising generations that they may know better than their predecessors what they must avoid, and how to do it. You will not spoil their innocent (?) minds when you substitute for the sexual knowledge gained in the streets and in the lavatories a correct appreciation of the possibilities for harm that lie in the abuse of the sexual function. This should apply equally well to girls as to boys.

The question naturally arises, How shall we reach the masses and what shall we tell them? To reach the masses, we need but follow the lines laid down in the propaganda waged against tuberculosis with certain modifications. A national organization with branches in every state and territory should be organized, which in turn shall be subdivided into a number of sub-committees, to each of which shall be assigned the task of reaching a certain portion of the public. Time and space in this paper forbid an elaborate scheme of sub-committees, but a few will serve to illustrate the idea:

(1) Committee on Public Schools: Inasmuch as a large number of children leave the schools before graduation, to enter shops and factories, it should be the aim of this committee to place within reach of every child of school-going age, a certain amount of knowledge of personal hygiene and sexual physiology, consistent with the age of the child. It seems reasonable to expect that if children are to be taught the ravages of tuberculosis and of alcohol, they should be taught something of the far greater dangers of venereal disease that lie in wait for them at every turn.

(2) Committee on High Schools and Colleges: This committee would supplement the work of the preceding committee. Here, plain words can be spoken. The pupils are no longer children, but young men and women.

(3) Committee on Working Men and Women: This committee, utilizing the labor unions and other organized forces, should aim to reach every man and woman who works at a trade. The effort is a gigantic one, but it is justified by the end to be attained.

(4) Committee on the Army and Navy and other military bodies.

(5) Committee on Shops and Factories: This committee, working among the young girls and boys employed in these places, can do considerable toward reducing the number of clandestine prostitutes. It is in these shops and factories that most of the seeds of immoral living are sown and carried to fruition.

(6) Committee on Churches and Affiliated Religious Bodies.

(7) Committee on Young People's Clubs and Settlement Houses.

(8) Committee on Fraternal Orders, etc.

Each of these committees can be made independent of the others, at the same time doing its work in co-ordination with them, and avoiding wherever possible any overlapping or duplication. The particular methods to be adopted by the respective committees must necessarily depend on the class of persons to be reached by them.

The work having been divided among these committees, the next step would be to map out a campaign, having for its objective point these two distinct objects in mind: (1) The exhibition of the dangers and results of venereal disease; and (2) the methods by means of which these diseases can be avoided.

(1) The community knows lamentably little about the dangers and results of venereal disease. Various methods must be skillfully employed to bring these facts to the public notice, without indiscriminate publicity. The most effective method of reaching large numbers of people is

the lecture platform, and I have no doubt that lectures on venereal prophylaxis, given to men and women separately, would not only attract large numbers, but accomplish excellent results. The stereopticon can be utilized to the greatest advantage in the system of lectures or meetings proposed for this campaign, to illustrate to large or small audiences the various lesions of venereal disease. Such a lecture, attended by men or women, would be far more effective in the diminution of venereal disease than half a hundred sermons from the pulpit on personal purity. The human mind naturally rebels at the sight of the noxious lesions which venery produces, and nothing can be more effective than a vivid illustration of them, coupled with a warning and instruction as to methods of avoiding them. Especial attention should be given to the dangers of venereal disease to the innocent, and also to the relation of venereal disease to marriage. Nature abhors the thought of the childless marriage, and if it were pointed out that a large proportion of sterile marriages, abortions and gynecologic diseases are due to venereal infection before and during marriage, a wholesome fear of the disease would be created, that does not at present exist in the minds of the public. In addition, a liberal distribution of well-prepared pamphlets or booklets, specially adapted to particular classes or bodies of men or women, would be most effective. At present, a number of excellent little pamphlets can be obtained, giving all the facts in the case, strongly and effectively. The machinery for their distribution should be created by this Association.

This campaign of education would necessitate the employment of well-equipped men, who would devote their evenings to lectures before bodies of workingmen or other organizations. Women similarly assigned to reach bodies of young women would do much for the movement.

(2) As to methods of avoiding venereal disease, the problem is not so simple, nor so easily dismissed. Two general lines of instruction suggest themselves: (*a*) As to the practice of total incontinence, and (*b*) as to the adoption of prophylactic measures by those who will not or cannot abstain.

(*a*) As to continence: Two questions will at once arise in the public mind: (1) Is continence possible? and (2) Is it consistent with good health? That it is possible, is certainly true, and needs no proof. Men who have indulged their sexual appetite to extremes have been known to abstain for a long time under certain conditions of mind and body. There need be no dearth of proof as to the possibility of masculine continence; but as to such continence being conducive to perfect health is not so easily demonstrable. The medical profession would surely split over this question, if it were submitted to its members for an aye and nay vote.

On the surface it does not appear that a physiologic function such as the sexual impulse, an impulse that has been the dominant passion in human lives since the beginning of time, can for many years be held in abeyance, subject to more or less constant irritation and temptation, without bringing about a pathologic condition in the organs involved. I believe the personal equation enters into this question to a considerable degree; continence for one man may be without deleterious results; for another, it may rank with the impossible. At any rate, it would be well, before any positive statements are made as to the advisability of advocating universal continence, that a thorough study of this subject be made, so that positive and well-founded information on this much mooted question might be at hand. As to continence as a prophylactic against venereal disease, we can safely say that medical science knows of but one *sure* prophylactic against venereal disease, namely, continence. Those who will abstain from promiscuous sexual relations will surely not be infected with venereal disease. But let us not, however, lead ourselves into the belief that the propaganda of continence and abstinence will in our time, or even in the remote future, develop into a fad. Not unless human nature changes, can we hope to see this policy universally adopted. Let us, rather, consider our time well spent, if we succeed in converting a small number of impressionable young men to the policy of continence, and in bringing to a larger number a realizing sense of the dangers, real and avoidable, that lie in the promiscuous gratification of the sexual appetite.

(*b*) But what shall we do with that vast army of men who decline the panacea of abstinence? Shall we consign them all to the devil and say to them " Either abstain altogether or let what may happen to you "? I do not think this attitude would be the proper one for us to assume. I believe that it is our moral duty not only to advise abstinence, but to offer to those who will not or cannot accept this advice an alternative, in the hope that by this means we shall be able to improve the present condition of affairs. To my mind, the most rational and practical plan with which to meet this situation would be to adopt the familiar injunction, " Be good if you can; if you cannot, be careful." In other words, let us urge upon all males the advisability of abstaining from promiscuous sexual relations if they would remain uncontaminated with disease; but to those who refuse to abstain entirely, let us urge the necessity of exercising extreme care and adopting such measures as will tend to diminish as far as possible the danger of veneral infection. I know this suggestion will be opposed on the ground that it is a compromise with vice. But I do not so regard it. I am convinced that such measures are not only justified, but absolutely demanded, if we would make headway against venereal disease. Let this be our second line of attack. Let us advise and urge a policy of extreme care in the selection of one's sexual companion, and, in addition, let us recommend the use of such mechanical or chemical agents as might be of value in the direction we are aiming. Under the former heading the rubber protective condom has been advised, and is being extensively used. Far better, however, are the chemical preparations so extensively employed in certain parts of Europe. Probably the most effective of these, as I have been convinced in my own practice, is a strong solution (20%) of protargol in glycerine, applied to the fossa navicularis immediately after coitus,. with a camel's hair brush or a small syringe holding a few drops. This method has also been recommended by von Zeissel, Frank, Valentine, Marschalko, L. Weiss, Welander, Joseph and Kopp. Silver nitrate and some of the newer silver salts can be used in the same manner, but I have had no personal observation of their value. Another very effective prophylactic method is to irrigate the anterior urethra with a weak solution of hot permanganate of potash or other mild antiseptic, within twelve hours after coitus. These measures offer a reasonable security against urethral infection. Externally applied, a solution of mercuric bichloride 1–1000 may be recommended for preventing extra-urethral infection.

It cannot be said that these measures will positively prevent venereal infection, but it must be admitted, even by those who are opposed to their employment on moral grounds, that they are capable of materially diminishing the risk, attendant upon promiscuous sexual congresss and that is the end we are seeking. I do not assume for a moment that our aim is to raise the moral tone of young men and women. Other agencies exist for that purpose. We are morally bound to offer any expedient or remedy that will minimize the dangers attendant upon promiscuous sexual living, not so much because of the individual immediately concerned, but on account of the innocent men, women and children with whom he comes in contact. It is on their behalf especially that everything possible should be done to reduce the risks of venereal infection, and for this reason, above all others, I strongly advocate the employment, wherever possible, of the prophylactic measures just mentioned.

Before concluding, it seems well to mention some special lines of attack that may also be followed with good results, especially in the prevention of venereal infection in the innocent:

(1) As family advisers, medical men are in a position where they can talk and act frankly. The physician should use his influence, wherever possible, to see to it, that his patients about to marry are not suffering from the remains of former venereal infection; and fathers of young women who are about to enter the new life should be taught to demand of their daughters' prospective husbands, a clean bill of health, signed by a reputable physician, after a careful examination. The public should and can be educated up to this requirement.

(2) There should be severe legal penalties against men or women who marry, knowing that they are still suffering from infectious venereal disease.

(3) Those who are infected with syphilis, gonorrhea or chancroid should be taught by their physicians the dangers of infecting innocent persons with whom they may come in contact, and should be instructed how to avoid this risk. A brief, well written and plainly worded little pamphlet or tract should be given to every patient in private or institutional practice.

(4) Barbers, dentists, manicures, chiropodists, nurses, midwives and physicians too, should be reached by a systematic campaign of instruction and warned about the care of their hands, instruments, dressings and utensils, so as to reduce to a minimum the possibility of transferring infection from one patron to another and to themselves.

(5) Waiters, bartenders and others who serve and prepare food and drink in public places, and their employers, as well, should be similarly reached and warned and instructed as to the importance of cleanliness, not only of their own persons, but of the dishes and utensils they handle. The abominable and dangerous practice of removing cups, glasses, etc., with the fingers inserted inside the vessel should be broken up. The public should be warned of the dangers lurking in bar glassware, etc., and should demand that the most scrupulous cleanliness be employed in hotels, restaurants and cafés. The filthy roller-towels found in these places should also be abolished.

(6) Occasional medical examinations of persons engaged in the preparation and serving of food and drink should be encouraged, to determine the presence of possible infectious disease.

(7) Nurse-girls, domestics and maids should not be permitted to sleep in the same beds with children, for obvious reasons.

In short, I am strongly convinced that an intelligent, well-directed effort along the lines herein indicated, will accomplish a great deal toward decreasing the sum total of popular ignorance on the subject of venereal disease, and simultaneously will reduce the amount and extent of venereal infection and its consequent miseries.

Clinical Department.

SEPTIC INFECTION THROUGH THE FAUCES.*

BY G. A. LELAND, M.D., BOSTON.

SEPSIS by way of the fauces is not very uncommon, especially to those who see many throats. The channels of invasion of the economy are most numerous around the mouth and fauces, and the tonsils themselves while organs of protection are also, as has been pointed out by Dr. J. L. Goodale, ports of entry. Fortunately, however, the cases which are commonly observed are by no means so severe as one reported by Dr. E. Channing Stowell, but occasionally septic invasion is so great, especially when caused by the streptococci, and also by the pneumococci that a sudden septic condition develops which is rapidly fatal, or at least exceedingly alarming.

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* Read at a meeting of the Boston Society for Medical Improvement, March 12, 1906.

A fatal case occurred several years ago in one of our colleagues, Dr. T. W., of Newbury Street. During that year there were many so-called streptococcus throats, some of which went on to edema of the glottis, with more or less general disturbance; while others showed marked tonsillar involvement with fever and malaise which characterizes sepsis having its origin here. This case was under the care of the late Dr. E. N. Whittier who saw it on a Monday morning. The patient had felt some local pain the previous evening while writing late, but had a good night, and called his physician on account of very severe pain in the right tonsil. It was considered that this was the beginning of a peritonsillar abscess. On Tuesday morning there was considerably more swelling, but the patient thought it was not ready to be opened, so they agreed to wait till the next day, when at his morning visit Dr. Whittier made ready to open the abscess immediately on his arrival by covering his bistoury with plaster so as to leave the point bared in the ordinary way. On looking at the throat, however, the swelling had disappeared and the patient remembered that about 5 A.M. there had been a sudden relief and the full feeling had disappeared without any evacuation of pus into his mouth. He, however, complained of some pain in the corresponding side of the neck at the level of the larynx.

The next morning, Thursday, he said that he had felt early in the morning a very severe pain low down in the throat and soon a rupture, and then he began to cough up purulent matter. I was allowed to see him at this time and found on the left side of the throat just above the larynx, pus welling out of a small aperture and passing over the aryepiglottic fold into the larynx. The pus had evidently passed down from the tonsil in the loose tissues outside of its sheath. The patient was then looking rather grayish and sallow with a high temperature indicating blood poisoning. Dr. S. J. Mixter was called and from the outside found the purulent tract, but as the pus was having free exit into the throat, there was no definite purulent collection. The patient continued in this septic condition, however, and on Saturday morning his heart began to give out, and he died about five o'clock in the afternoon.

Another case occurred in my practice during the same year, and was seen with Dr. Prouty. A young man about twenty years of age had acutely infected lacunal tonsils with considerable soreness of the fauces and pharynx, shown by redness and painful swallowing, malaise was naturally present. This followed about three months after the removal of a spur in the nose, during which time there had been some treatment to insure proper healing of the wound. Unfortunately this was during the spring months of that infective year.

With probe-pointed knives the tonsillar crypts were thoroughly cut through and into each other, and the tonsils then forcibly filled with Monsel's solution to stop hemorrhage, and to keep the cut surfaces from immediately reuniting.

Two or three days later Dr. Prouty telephoned me that the patient's temperature was 106° F., and the throat very sore and red, otherwise there was not much to be seen. That evening on examination the tonsils were ragged with exudate over the surface as would be expected. The glands of the neck were not markedly enlarged. There was intense redness of the whole visible part of the throat, but no marked swelling anywhere. It was concluded that it was a streptococcus infection and one bottle 20 cc. of a French preparation of antistreptococcus serum was given. The next morning the temperature was 102°. Another injection of the same quantity was given and that evening the temperature was normal. This condition of the throat was not erysipelas as there was not the usual very marked mucopurulent discharge. I mention this case, first, because it was one of infection common to that year, and, second, because such a marked reduction of temperature and other symptoms followed the use of the serum. This, of course, might have been *post hoc* rather than *propter hoc*, but whichever it was it was very satisfactory and would encourage me in the use of that serum in similar cases.

A third case of general sepsis in a mild degree comes to mind; that of a lady who, usually robust and of a brilliant rosy complexion, was suffering from very marked malaise with a very slight elevation of temperature, but still able to be about. She complained mainly of great fatigue, but not of any local condition. The hearing of one of her ears is somewhat diminished, for which she occasionally seeks treatment, and her throat was treated in connection with the ear. Her malaise and depression were so marked that the urine was sent to an expert for examination with the idea that there might be some renal lesion, and found to be practically normal. After two calls complaint was distinctly made of discomfort in the right tonsil, which showed no unusual redness nor swelling. Exploration revealed a pocket full of decomposing cheesy masses. This cavity was cleaned out and disinfected. A few days afterwards the lady expressed surprise at the wonderful change which had come over her; her malaise had all gone, her complexion was restored to its ruddy hue, and now nothing seemed too great to attempt, whereas before even to walk to school with her child required great effort.

Cases like this are by no means uncommon and show what a little thing may cause a lowering of the general health. In addition to this may be mentioned cases of absorption from diseased tonsils, where the septic material seems to manifest itself in the skin as acne (which has been shown by Dr. Goodale in another place), also in the experience of laryngologists frequently to be cured or, at least, ameliorated by the elimination of the decomposing contents of these tonsillar crypts. It is extremely fortunate for us and for our patients that cases of such an extreme degree of sepsis as that reported by Dr. Stowell do not often occur from the throat although, it is sad to say, that sometimes they occur in aural practice but the mild cases mentioned are worthy of our consideration as they certainly do produce a great deal of discomfort.

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Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

Section on Surgery and Anatomy.

Held in Boston, June 5, 6, 7, and 8, 1906.

Dr. Robert F. Weir, New York, Chairman.

RESULTS OF PARTIAL OCCLUSION OF LARGE ARTERIES.

A paper on this subject was read by **Dr. W. S. Halsted** of Baltimore, Md., who stated that during the past twenty months he had conducted a series of experiments on 100 dogs for the purpose of observing the effect of complete and incomplete occlusion of the abdominal and thoracic aorta by metal bands. He had found that the pressure below the band was lowered in proportion to the amount of the occlusion. The return to normal below the band was rapid, but varied greatly in different dogs. Partially occluding bands produced, as a rule, no macroscopic change in the artery wall, even after seven or eight months, but under completely occluding bands the artery wall usually atrophied and in the course of several weeks or months was absorbed. Twice the portion of the arterial wall embraced by the band was converted into a solid cylinder of tissue. He considered this the ideal closure of an artery. One notable change was the unusual deposit of extradural fat about the spinal cord below the site of the constricting aortic band. He thought that lesions in the cord or the artificial anemia was responsible for this deposit. He thought this metal band might be extremely useful in occluding arteries above an aneurism. The band was preferable to the silk or other ligature because it was not liable to cut through the vessel wall; it produced gradual occlusion. It could be removed, if necessary, without having in any way injured the vessel wall. The speaker said he had partially occluded the innominate once in the human subject, and the carotid four times, successfully, with an aluminum band. In a case of large popliteal aneurism he employed the band to occlude completely the femoral artery. He thought that partial occlusion might even in rare instances cure an aneurism.

TREATMENT OF ANEURISM BY INTRASACULAR SUTURE.

The author of this paper, Dr. Rudolph Matas of New Orleans, La., gave a brief review of the operation which he had described on a former occasion, and reported 38 cases in proof that his method had not only stood the test of experience, but that it would accomplish results with greater security and simplicity than any of the older methods hitherto employed. He reported 22 cases of obliterative endo-aneurismorrhaphy, and 7 cases of restorative endo-aneurismorrhaphy. Of these there had been no relapses, although there had been two relapses out of 5 cases of reconstructive endo-aneurismorrhaphy or arterioplasty.

DISCUSSION.

In the discussion, Dr. W. W. Keen of Philadelphia described a clamp that he had devised for producing partial occlusion of a vessel under graded pressure, on the same principle, to a certain extent, as the metal bands employed by Halsted.

Dr. Willy Meyer of New York City reported the case of a boy who had a traumatic aneurism of the popliteal artery in which the method of Matas was employed, with excellent results.

SURGICAL CONCEPTION OF SIGMOID PATHOLOGY.

Dr. H. D. Niles of Salt Lake City, Utah, called attention to the point that he believed that chronic ulcer or its cicatrix was the cause of cancer of the bowel in 80% of all cases, and that any rational treatment of sigmoid disease must be based on a correct perception of the anatomy, physiology and pathology of that part of the bowel. To recognize and interrupt this process at the earliest possible moment, and before irreparable damage had been done, should be the aim of the physician. Pathology here passed from the medical to the surgical field when any ulceration or necrotic process starting in the mucosa extended to or included the peritoneum; whenever there was any evidence of mechanical obstruction, partial or complete, regardless of the cause; when a localized peritonitis existed that did not readily yield to simple measures directed to the suspected cause. The essential principle of treatment was rest, and just how this might be accomplished successfully could not be stated at the present time.

TUMORS OF THE CAROTID GLAND.

Dr. W. W. Keen of Philadelphia detailed an instructive case of tumor of this gland, and reviewed the literature of 27 other cases, and 2 cases discovered post-mortem. Of the 27 cases cited, there were 26 operations, with 7 deaths, a mortality of 27%. Operation, he said, was not indicated unless serious functional disturbances arose, except when there was unmistakable evidence that malignant changes were rapidly taking place in the tumor.

NEOPLASMS OF THE LARGE INTESTINE.

Dr. A. F. Jonas of Omaha, Neb., read a paper on this subject, in which he detailed 16 cases involving the colon and briefly described the pathology from a diagnostic point of view. In the diagnosis a careful study of the history was of the first importance. Cramplike pains, abdominal tenderness, palpable tumor, and obstruction of the bowel were also of importance, although the existence of these symptoms indicated only the presence of a lesion of some kind. Gurgling, distinguished by means of a stethoscope, especially after air had been injected into the rectum, was a valuable sign. He did not offer anything especially new, except a double loop ligature which he had employed for many years as an aid to suturing the bowel after resection of a part of the gut.

Dr. Robert H. Dawbarn of New York City expressed himself as being a firm advocate of the use of a continuous suture, using a linen thread and the so-called morphine splint, checking all peristalsis until the union of the bowel was assured. He did not favor the use of any mechanical device.

Dr. F. A. Dunsmoor of Minneapolis, Minn., reported a case of ulcerative colitis in which he found it necessary to remove a large part of the colon down to the sigmoid flexure. In making an anastomosis he uses a button, except when he gets below the small intestine; then he employs the suture.

Dr. E. Wyllys Andrews of Chicago referred to the efficacy of the Connell suture for intestinal anastomosis. He employs it not only for uniting the large and small intestines, but also in cases of pylorectomy and gastro-enterostomy.

Dr. Leonard Freeman of Denver, Colo., directed attention to the comparatively favorable prognosis of cancer of the sigmoid and cited a case in illustration, the patient being free from a recurrence eighteen months after removal of the growth.

SILVER WIRE FILIGREE WORK.

In a paper on this subject, Dr. Willard Bartlett of St. Louis, Miss., detailed 22 cases in which a method previously described by him was employed with most excellent results. Of this number, 4 terminated fatally, but from causes not connected with the operation or the implantation of the filigree. The patients lived six months, three months, ten days and two days, respectively. The method can be employed in clean cases and in pus cases. It withstood the test of pregnancy once, and of tremendous ascitic accumulations in two cases. It had not interfered with the growth and development of the abdominal wall in small children, and was used twice as a prophylactic measure in cases where there seemed to be a possibility of a hernia developing. In no case did the filigree fail to perform its functions. It did not need a clean wound for its bed.

Dr. A. J. Ochsner of Chicago read a paper on

SURGICAL TREATMENT OF FEMORAL HERNIA.

The author reviewed the various operations now employed for the cure of femoral hernia, and described a method devised by him, which he used in all simple femoral herniæ. This method consists in the removal of the hernial sac, the reduction of the stump within the peritoneal cavity, and the closure of the superficial wound. The hernial ring is left to close spontaneously.

DISCUSSION.

Dr. **Albert H. Tuttle** of Cambridge, Mass., said he had employed silver wire in 15 cases of ventral hernia following appendicitis, in umbilical hernia and inguinal hernia, but in every instance it became necessary later to remove the broken pieces of the wire. He expressed himself as being convinced that silver wire is acted on by the body juices in the same manner as any other suture material, but perhaps not quite so rapidly.

Dr. **Alexander Hugh Ferguson** of Chicago said he was impressed with the operation described by Dr. Ochsner for femoral hernia, and added that if the results were always as good as Dr. Ochsner claimed, he, too, would employ the method. Thus far, however, he had never seen a recurrence of a femoral hernia operated on by the radical method. It was his custom to make the incision above Poupart's ligament and parallel with it, dissecting out the hernia from below.

With reference to tying off the sac, he never did this without first opening it.

At the joint meeting of the sections on Practice of Medicine and of Surgery and Anatomy, there was a symposium on

GASTRIC AND DUODENAL ULCER.

The first paper, read by Dr. **Frank Billings** of Chicago, was on

THE CAUSE AND DIAGNOSIS OF GASTRIC AND DUODENAL ULCER.

Dr. Billings discussed the current theories as to the causation of ulcer, its clinical history and differential diagnosis, and said that when the classical symptoms were present the diagnosis could be made easily, but when the symptoms were not clear, the diagnosis might be exceedingly difficult.

MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCER.

Dr. **Alexander Lambert** of New York City pointed out that the first essential in treating this condition was complete rest for the body and the stomach. This meant rest in bed and rectal feeding, followed by continued rest in bed and a milk diet. The length of time necessary to remain in bed varied from a week or two in the acute cases to several weeks in the acute exacerbations of chronic ulcer. The method of feeding was described in detail. Gastric feeding should be begun before the rectum grew intolerant, and as gastric feeding was increased, rectal feeding should be decreased. Massage and a non-irritating form of iron should also be prescribed. After the patient was up and around and returned to his duties, his feeding must be supervised carefully. The bismuth cure and the olive oil cure were also worthy of mention in the treatment of ulcer. Excellent results were obtained by the use of a mixture of chalk, talcum and magnesium, and by that of insoluble carbonate of lime instead of the bismuth. He stated that until the best operation and its technique were more generally agreed on, and there were published more statistics of the ultimate results of operations, physicians could not enthusiastically adopt a surgical point of view.

WHEN DO GASTRIC AND DUODENAL ULCERS REQUIRE SURGICAL TREATMENT?

Dr. **William L. Rodman** of Philadelphia stated that chronic ulcers were usually so from the beginning. At least 50% remained uncured by medical means, and of the remaining 50% discharged as cured, at least one half relapsed, and 25% ended fatally from perforation, hemorrhage, anemia, etc. To relieve inveterate dyspepsia of both acute and chronic ulcers, surgical intervention was often necessary. If the ulcer or ulcers were at or near the pylorus, as he believed they were in 80% of all cases, and the pylorus and duodenum were free from adhesions or could be easily mobilized, pylorectomy or excision of the ulcer-bearing area was the operation of choice. It successfully dealt with multiple ulcers, prevented possible perforation, hemorrhage, cicatrices resulting in disabling adhesions, stricture, hourglass stomach and malignant degeneration, leaving the organ in the best condition for future use. Gastrojejunostomy frequently afforded relief, but not always. It could not prevent either pathological or mechanical changes which threatened life either directly or indirectly. Finney's operation or pyloroplasty, which made a larger opening, imitated nature, and was not followed by peptic ulcer, and was growing in favor and would theoretically seem to be indicated where there was neither fresh ulceration nor markedly impaired gastric motility.

Dr. **William J. Mayo**, of Rochester, Minn., dealt with the

SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER AND THEIR RESULTS.

The complications of acute ulcer were always to be treated surgically. He reviewed 600 cases operated on in his hospital. Acute perforating ulcer: gastric 7, deaths 2; duodenal 9, deaths 3. Operation within five hours was usually successful, but after ten hours the majority of patients died. Treatment by transverse suture was indicated to prevent stenosis and gastrojejunostomy if the patient was in good condition. Suprapubic drainage should be established with or without irrigation, the patient being maintained in a semi-sitting posture for several days. Acute hemorrhage: 11 cases, 1 death. The stomach should be opened and the bleeding area sutured from the inner (mucus) side with catgut on a curved needle; it should be protected on the outside by musculoperitoneal sutures of linen, or, if feasible, one should excise the ulcer. Gastrojejunostomy alone was unreliable. Chronic hemorrhage: Excision or gastrojejunostomy was efficient. Chronic ulcer: Gastrojejunostomy was performed 383 times, 64% of the whole. It was most useful when there was permanent interference with motility. The posterior "no loop" operation was the best; the incision beginning within three inches of the origin of the jejunum, which should be attached to the bottom of the stomach in such a manner that the distal end of the bowel was to the left; of this there had been 135 operations with 1 death. All "loop" operations with or without entero-anastomosis were obsolete. The anterior operation with Murphy button or McGraw ligature might rarely be indicated by reason of posterior adhesions or anatomical abnormalities. Gastrojejunostomy was not a cure-all. If motility was normal, if the pylorus was open, and if no dilatation existed, muscular action continued to force food out by the natural channel rather than through the artificial opening. Gastroduodenostomy of Finner: 72 cases, 4 deaths. There was a growing field of usefulness for this operation. It left an opening in the natural situation and the lines of drainage were downward along the greater curvature. It was most useful in cases of mucous ulcer and loss of motility due to spasm. Excision of ulcer: 14 cases, no death. This was indicated for ulcer on the lesser curvature without obstruction or dilatation. It might be combined with the Finney operation when the ulcer was close to the pylorus. Rodman's operation (resection of pyloric end of stomach with independent gastrojejunostomy): 7 cases, no deaths. This operation was indicated in all cases of calloused ulcers. Resection of stomach, removing entire diseased area: 12 cases, all recovered. This was indicated in hourglass contractions and calloused ulcers involving the body of the stomach in which there was a suspicion of malignancy. Generally speaking, failure of operation to cure gastric and duodenal ulcers was usually the result of defective technique or bad choice of method.

DISCUSSION.

In the discussion, Dr. John C. Hemmeter of Baltimore directed attention to a method of diagnosis employed by him with great success. The patient was given a large dose of bismuth, and the stomach was then washed out and x-rayed. The bismuth adhered to the ulcerated surface and was seen very plainly as a shadow on the plate. He mentioned another method of diagnosis which consists in administering about 8 gr. of orthoform in 8 oz. of hot water. This mixture will promptly ease the pain if it is due to gastric ulcer, but will not relieve the pain of gallstones. He believes that in cases of uncomplicated ulcer surgical treatment is not indicated, and only when complications ensue should the patient be referred to the surgeon for operation.

Dr. A. P. Francine of Philadelphia, Pa., directed attention to the fact that many conditions might simulate ulcer very closely, so much so that a mistake in diagnosis might be made. A study of post-mortem records had convinced him that tuberculosis did not enter into the causation of ulcer at all. Out of 143 patients dying from advanced tuberculosis there was no case of acute gastric ulcer. He thought that many cases of gastric ulcer produced symptoms so slight that they were not recognized.

Dr. C. D. Spivak of Denver advised giving the stomach absolute rest and also the intestinal tract so that the peristaltic movements of the intestines produced by rectal feeding would not cause the stomach to move in any way.

Dr. Geo. W. McGaskey of Fort Wayne, Ind., urged the individual treatment of each case instead of trying to make the case fit a routine treatment.

Dr. John B. Deaver of Philadelphia, Pa., discussed the indications for surgeical intervention in infections of the biliary tract. He cited the statistics of 216 cases operated by him at the German Hospital, dwelling especially on the complications and the results of operations.

SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.

Dr. F. J. Shepherd of Montreal referred to the various methods of surgical intervention in this affection, and stated that the only method worth considering at present was the removal of half or more of the gland. Early operation was imperative, and especially in those cases in which the enlargement of the gland was chiefly on one side and had preceded the advent of the nervous symptoms. In extreme cases of exophthalmic goitre, when the disease was very rapid in its course, and the right heart was dilated, other than surgical measures had better be adopted. In nearly all cases removal of a portion of the thyroid was beneficial. Eighteen cases were reported, three of the patients dying from thyroidism very soon after operation. Eight patients were cured completely. The average age of the patients was twenty-eight years, the oldest being fifty-three, and the youngest fourteen years of age.

TREATMENT OF EXOPHTHALMIC GOITRE BY A SPECIFIC SERUM.

Drs. John Rogers and S. P. Beebe of New York City explained the preparation of the serum employed and reported the results of treatment by them in 41 cases. They say that 8 patients were cured, 25 improved, 6 proved failures and 2 died. Cases of others, 28: 3 cured, 16 improved, and 9 failures. Of personal cases of typical chronic goitre, there were 2 cured, 14 improved and 3 failed. Of atypical thyroidism, 3 patients were cured, 3 improved and 3 died. Of acute and chronic toxic thyroidism, 2 patients were cured, 6 improved and 2 died. Of psychopathic and neuropathic exophthalmic goitre, 1 was cured, 2 improved and 1 failed.

Dr. Alexander Hugh Ferguson of Chicago described his method of doing perineal prostatectomy and reported cases.

CLINICAL SIGNIFICANCE OF VARIATIONS OF WRIST AND ANKLE.

Dr. Thomas Dwight of Boston said that these variations were of great importance, both clinically and medico-legally. The increased number of bones might be due to persistence of embryonic elements which normally fused or disappeared. Thus one bone might be represented by two. Fusion of usually distinct parts might occur at definite points. Through variations of development bones might have different or abnormal relations. The over-development of processes, usually small or absent, gave many illustrations of such variations. Although the causes were diverse and imperfectly known, and although some variations were common and others were rare, it was important that they occurred at certain definite points. Though they were not originally the effect of lesion, yet an extra bone generally was a point of diminished resistance, and hence not uncommonly the seat of a lesion.

CARDIAC STIMULATION FOR SUSPENDED ANIMATION BY DIRECT DIGITAL MANIPULATION.

This was the title of a paper contributed by Dr. Merrill B. Ricketts of Cincinnati, who, among other things, stated that of 18 patients in whom intrathoracic transpericardial massage had been performed, four recovered completely, seven lived from one minute to twenty-four hours, and in seven the pulse never returned. Of the nine patients in whom the subdiaphragmatic transperitoneal method had been resorted to, five continued to live, in two the heart pulsation was restored for a short time, and in two the heart-beat was not restored. The cessation of the heart beat for one minute was sufficient to justify direct digital cardiac massage after the ordinary means had been applied.

APPENDICOSTOMY.

Dr. James P. Tuttle of New York City spoke of the origin of this operation by Dr. Weir, described the method of its performance, and cited instances in which it had been employed successfully, both in ulcers of the bowel and in cases of amebic dysentery.

Dr. Robert Abbe of New York read a paper entitled

RADIUM IN SURGICAL WORK.

Among other things, the author pointed out that epithelial cancers of the face were all curable by radium, especially when the tumor was situated in a locality where its removal by surgical means would necessitate a disfiguring operation. In his judgment, radium proved successful in those cases where the Rœntgen ray failed. The action of the radium resembled that of the Rœntgen ray, but it differed specifically in that it cured some cases which resisted the latter. It was applicable to the interior cavities of the nose and mouth which were inaccessible to the ray.

Dr. Frederick Mueller of Chicago followed with a paper entitled

PRIMARY POSITION IN BLOODLESS TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.

The author claimed that the large percentage of subspinal positions after the operation of Lorenz were usually due to a twisting and bending of the neck of the femur. If the head was replaced in its socket, it was forced out of its place again if the thigh was placed in the Lorenz primary position. This was due to the fact that the axis of the pocket-shaped recesses did not correspond to the position of the axis of the femur, head and neck. Stable reposition required that these axes correspond. The author places the femur in a neutral rectangular reduction, so that the patella faces the frontal plane. This position was fixed by a cast which reached to the ankle or to the toes, if necessary. This position had given most beautiful results in cases in which the Lorenz operation had failed.

Dr. V. P. Gibney of New York mentioned 43 cases in which he had used the bloodless method of reduction. Of this number, 8 were anatomical cures. There were 2 functional cures. Seventeen patients were improved, 14 were unimproved, there was 1 doubtful case and one patient died.

(To be continued.)

Recent Literature.

The Practitioners' Library. The Practice of Gynecology in original contributions by American authors, edited by J. Wesley Bovée, M.D., Professor of Gynecology, George Washington University, Washington, D. C. Illustrated with 382 engravings and 60 full-page plates. Philadelphia and New York: Lea Brothers & Co. 1906.

This is a large volume of 836 pages, printed and bound in Lee Brothers' well-known substantial manner. It is a series of monographs on different departments of the science and art of gynecology by seven American authors, the contributors being, the editor, J. Wesley Bovée, of Washington; J. Riddle Goffe, of New York; G. Brown Miller, of Washington; George H. Noble, of Atlanta; Benjamin R. Schenck, of Detroit; Thomas J. Watkins, of Chicago, and X. O. Werder, of Pittsburg. There are thirty chapters, of which Bovée furnishes seven; Miller, seven; Goffe and Noble, four each; Watkins and Werder, three each, and Schenck, two. The first chapter is on the examination of the pelvic contents; then follow, properly enough, chapters on the developmental anomalies of the female generative organs, menstruation and displacements of the uterus. Chapter V is on the subject of fecal fistulæ connecting with the female generative organs; Chapter VI on urinary fistulæ. Why these two chapters are placed before Chapter VII on lacerations of the perineum it is difficult to discover, or why chapters on sterility and diseases of the rectum and anus should come between chapters on diseases and injuries of the vulva and vagina, and inflammations of the uterus and lacerations of the cervix. In the preface we read that the diseases are classified according to pathology and bacteriology because the editor considers this a more rational and logical arrangement than the usual classification. To the reviewer's mind the arrangement not only of the chapters but of the subject matter of this book is far from logical, is confusing to the reader, and, more than the ordinary anatomical classification, makes for repetition.

Most of the original illustrations in black and white, both engravings and plates, are strikingly well done. A large number of excellent illustrations, have been borrowed from E. C. Dudley's gynecology and a smaller number from other works of a standard character. The incorrectly colored plates, of which several depicting pathological specimens in the later stages of decomposition, although not true enough to nature to recall the appropriate sensations to the olfactory sense, add nothing to the value of the book. When will custom sanction the omission of such plates?

Certain portions of the book illustrate the advantages derived in securing a breadth of view not obtainable in the work of a single author, a point noted by the editor in the preface; for instance, the chapters on fistulæ by Noble and the chapter on the vaginal method of operating by Goffe are excellent both in text and in illustration. So also the chapters on infections of the Fallopian tubes and ovaries by Watkins, in which the subject is attractively treated and clever practical suggestions as to operative manipulations abound.

A lack of coherence, a natural fault in a work by many authors, and a leaning to operative measures are salient features throughout. It properly belongs, as the title suggests, in the practitioners' library, and is to be consulted with profit when searching for information on special subjects.

Osborne's Introduction to Materia Medica and Pharmacology. An introduction to the study of Materia Medica and Pharmacology, including the Elements of Medical Pharmacy, Prescription-Writing, Medical Latin, Toxicology and Methods of Local Treatment. For the use of Students of Medicine and Pharmacy. By Oliver T. Osborne, A.M., M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in Yale University, ex-President of the American Therapeutic Association, etc. In one 12mo volume of 167 pages. Philadelphia and New York: Lea Brothers & Co. 1906.

This book contains many useful hints to beginners in the study of Materia Medica and Pharmacology.

THE BOSTON

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REPORT OF BUREAU OF HEALTH, PHILIPPINE ISLANDS.

WHATEVER may be the ultimate advantages politically of acquiring the Philippine Islands, there is not the smallest doubt that most admirable medical work has been accomplished during the short period of American occupancy. The *Philippine Journal of Science*, still in its first volume, is offering in most presentable form original researches of much weight and significance, and the frequent reports of the health department show an untiring energy in the scientific combating of diseases which heretofore have been a constant menace to the people and to the welfare of the country at large.

In the report before us Dr. Victor G. Heiser, of the Public Health and Marine Hospital Service and Commissioner of Public Health, makes a brief statement of the accomplishment during the year covered by the report up to Aug. 31, 1905. Attention is called to the appearance of cholera in August, 1905. Although certain fatal cases presented the clinical symptoms of Asiatic cholera, the organisms could not be found and meat poisoning was suggested as a cause. At the time of going to press, Dr. Richard P. Strong was still engaged in an investigation to determine whether it was possible to isolate the organisms peculiar to meat poison. Many of the cases, however, were later definitely determined to be cholera, and there is increasing reason to believe that the disease is indigenous to the Philippines. As a means of combating it a campaign of education was instituted by issuing circulars containing simple rules regarding prevention of the spread of the disease. These circulars were widely distributed not only in the cities but in the smaller outlying communities. Whether due to greater precautions or not, the disease remained confined to Manila.

An investigation into the treatment of leprosy by the x-ray by Dr. H. B. Wilkinson is of much interest but as yet not conclusive. Improvement undoubtedly took place under this treatment, but many more must be treated before definite conclusions can be reached.

The question of medical education and regulations regarding the practice of medicine and surgery in the Philippines is becoming a matter of growing importance. Native physicians in the provinces are not numerous and in order to make up for this deficiency Dr. Heiser has organized a plan for a modern school of medicine in Manila, giving facilities for post-graduate work and the establishment of research laboratories. A bill has been submitted legally to incorporate a medical school in the Philippines and to define the manner in which it shall be controlled and conducted. However the details of this plan may work out, the necessity for an adequate medical school in the islands is apparent, and there seems no sufficient reason why a school of the highest standard should not be established and should not attract teachers and students of high capacity.

The need and necessity of sanitation is somewhat eloquently presented by Dr. Edward C. Carter, representing the Board of Health. He writes, for example, as follows:

"Is it not true that a nation's worth may be gauged by its sanitation; that a people's efficiency may be measured by its life hygiene; its doom be predicted from its dirt, and its destruction presaged from its filthiness? History proves it by methods as clear, logical and convincing as those employed in geometry, and science demonstrates it with mathematical precision. But science does more than that: it explains why the fact is as it is; and, better still, it points out a way to remedy the evil. Much is known now in regard to sanitation not dreamed of twenty-five years ago; and ten years hence much more will be known."

The spirit which prompts utterances of this sort means the organization of boards of health on high planes of efficiency. As a matter of fact what is known as the Bureau of Health is subdivided into eleven divisions, each with distinct duties. A reading of this portion of the report will well repay those who are interested in matters of general sanitation under circumstances of peculiar difficulty. As suggested above, one of these difficulties is the lack of competent physicians to undertake and superintend the work. The total population of the Philippine Islands numbers more than seven and a half millions of whom but three hundred and sixty are physicians, or a proportion of physicians to population of one to over twenty-one thousand. The disproportion is naturally less in Manila than in the country districts but the fact remains that there is need of workers interested rather in the missionary side of their profession than in its emoluments. As the report states:

" It should not be inferred from such figures that there is a demand for American or European physicians in the Philippines. It is almost as difficult for a physician to establish a practice in the Philippines as it is in the United States. Physicians before coming to the Philippines to locate should carefully consider the question."

No doubt the solution of the problem lies in the education of the natives rather than in the extensive importation of foreigners.

◆

THE STERILIZATION OF CERTAIN MENTAL DEGENERATES.

Rentoul[1] would operate to prevent the transmission of degeneracy. He would not remove the testes or the ovaries; nor would he mutilate, castrate or asexualize. He would not destroy either the primary or the secondary sexual characters of either sex. In the female he would excise and ligate parts of the Fallopian tubes. In the male he would either excise and ligate parts of the vasa deferentia, or he would do a double spermectomy. In animals that have undergone simple vasectomy the testes do not atrophy, and there is sexual desire and power but inability to impregnate. When the spermatic cords are divided, however, there is neither sexual desire, nor power nor ability to impregnate. This latter operation, Rentoul would do when " compulsory sterilization " is demanded, and it would be applicable to " lunatics, epileptics, idiots, confirmed criminals and inebriates, habitual vagrants " and others mentioned in a table which does not accompany his paper. He mercifully suggests, as an alternative to a surgical operation, the application of the x-rays to the testicles, with the expectation that such treatment would result in sterility.

Upon whom would Rentoul operate? Here, except with regard to spermectomy as above stated, he is hopelessly indefinite. Besides, is he going to do for a habitual vagrant as he would for an idiot? He gives statistics concerning the proportion of the insane, which varies from one to six hundred and fifty-seven in one table, to one to fifty in another. He finds the proportion of children between the fifth and the fourteenth years who are feeble minded and not distinctly insane to be one in one thousand. He declares defectives to be the most dangerous from the procreation standpoint, upon much the same principle that, with regard to any infection, it is the slightly marked cases which are the most dangerous and cause the greatest havoc in the community. It is only the other day that a responsible alienist stated in a respectable journal that we are all of us more or less insane. It is to be hoped Rentoul has not seen that article. He would sterilize " certain degenerates." Clearly, if steps so radical as he proposes are to be taken, the operable cases should be distinctly specified.

And by what authority would he do these things? In England he would have the Lunacy Commissioners issue special permits to surgeons who would operate. The idea of giving such power to any commission of any sort in the United States would be so fatuous that consideration of it is superfluous.

Evidently Rentoul does not take into account the national laws which do so much to prevent the evils he sets forth. The principle of natural selection generally dominates the normal individual, so that he or she will not mate with a degenerate. And the law of the survival of the fittest acts to eliminate most of the unfit. Infinitely more would be done than could be achieved by Rentoul's plan if many baneful conditions of civilization were mitigated, — if the senseless inhumanity of man to man were not so great; if poverty did not result in so much Malthusianism; if so many wretched creatures did not find the struggle for existence so great that they could forego the use of alcohol and other paratriptics; if cities could be made sanitary and slums eliminated; if multitudes of the race were not so foolhardy as to prefer the darkness and the putridity of tenements to the sunshine and the healthfulness of rural districts. Here is madness, indeed, which, if it could be dispelled, would result in a rectification of degenerate states vastly greater than Rentoul's scheme could accomplish.

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[1] " Proposed Sterilization of Certain Mental Degenerates; " a paper read by Robert R. Rentoul, of Liverpool, before the Section of Psychology, at the Annual Meeting of the British Medical Association, at Toronto, August, 1906.

THE PROGRESS OF PUBLIC HYGIENE.

There is evidence on every hand that the public at large as well as the medical profession is becoming actively interested in the great problems of public hygiene. The various crusades for improved conditions of life, whether in the factory, tenement house or the public streets, are indications of the growing feeling that prevention is one of the increasingly important questions of the future. An excellent example of the spirit to which we refer is shown by the recent attack upon the time-honored pilgrimage to Lourdes, which, however regarded by the thinking portion of the populace, has been allowed to go on year after year without interference or definite protest. It appears now, however, that the physicians of France have risen to a sense of their responsibility in this matter and that the opinion is gaining ground that for hygienic reasons the pilgrimages should be discontinued. It is an interesting fact that the physicians at Lourdes are said to be among those who still defend the pilgrimage. Ulterior motives may possibly be suspected inasmuch as the town derives its chief income from the pilgrims who visit it, reputed to be some three hundred thousand each year. The natural objection made by physicians and sanitarians is that the conditions under which the pilgrims come to Lourdes and bathe in the supposedly healing water are quite contrary to the generally recognized laws of hygiene. This position is, without question, well taken, and it would seem to be the part of prudence for the authorities to consider seriously whether the pilgrimage should not be discontinued or at least so far modified that its votaries be compelled to adopt hygienic measures while bathing in the curative waters. So far as we know, the controversy which has arisen has not yet been settled. It is clear that a recognized custom, which in the minds of the people has led to miraculous results, would be extremely difficult to uproot even by the powerful forces of an aroused public opinion. The situation is at least interesting as illustrating the difficulties which our modern unsentimental sanitary code must meet in the prosecution of its work. Just what Lourdes does and how it accomplishes its results it is not our present purpose to discuss, but that its methods must sooner or later be modified to meet modern sanitary requirements is not open to doubt. How this is to be effected, is not yet apparent. One can easily see that influences will be brought to bear to oppose the progress of reform from several sources.

MEDICAL NOTES.

Cancer Research in Sweden. — It is reported that a committee under the chairmanship of Professor Berg has been formed by the Swedish Medical Society for the special study of cancer.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Sept. 12, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 25, scarlatina 18, typhoid fever 64, measles 0, tuberculosis 34, smallpox 0.

The death-rate of the reported deaths for the week ending Sept. 12, 1906, was 18.87.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Sept. 8, 1906, was 228, against 200 the corresponding week of last year, showing an increase of 28 deaths and making the death-rate for the week 19.74. Of this number 116 were males and 112 were females; 222 were white and 6 colored; 145 were born in the United States, 76 in foreign countries and 7 unknown; 39 were of American parentage, 158 of foreign parentage and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 27 cases and 1 death; scarlatina, 11 cases and 0 deaths; typhoid fever, 49 cases and 5 deaths; measles, 1 case and 0 deaths; tuberculosis, 24 cases and 15 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 12, whooping cough 2, heart disease 27, bronchitis 3 and marasmus 6. There were 8 deaths from violent causes. The number of children who died under one year was 87; the number under five years 96. The number of persons who died over sixty years of age was 46. The deaths in public institutions were 77.

There was 1 case from cerebrospinal meningitis reported during the week.

Centenarians. — The death of Mrs. Eliza Fairchild Wheeler occurred recently at Easton, Conn., at the reputed age of one hundred and one years.

Miss Mary M. Lincoln, of Leominister, Mass., died Sept. 7, at the age of one hundred. She died in the same room in which she was born, the house being upwards of one hundred and fifty years old.

Appointment of Somerville City Physician. — Dr. Frank L, Morse has been appointed by

Mayor Grimmons, of Somerville, City Physician to succeed the late Dr. A. B. Dearborn. Dr. Morse has had charge of the Bacteriological Department of the Board of Health since 1902. He is a graduate of the Harvard Medical School in the class of 1894 and served at the Boston City Hospital. For a number of years Dr. Morse was medical inspector for the State Board of Health.

Training School for Nurses, Framingham, Mass., Hospital. — As a memorial to their parents, Mr. F. A. Day and Mr. Henry B. Day, of West Newton, Mass., have given a new nurses' home to the Framingham Hospital. This school has done much admirable work in the training of nurses for many years past. It is announced that Miss Annabel L. Stewart, who has been at the head of the hospital and training school for nearly twelve years, is about to resign to take up work in another field.

Visit of Sir William Perkin.— A short time ago a jubilee was held in London to celebrate Sir William Perkin's notable discovery of mauve and the consequent marvelous development of the coal tar industry with its close relationships to medicine. Sir William is to visit the United States and expects to include Boston in his itinerary. Preparations to receive him are being made by the New England Society of Chemical Industry, the Northeastern Section of the American Chemical Society and the Drysalters' Club of New England.

NEW YORK.

A Centenarian.— John Pierson, of Swedesborough, Gloucester County, N. J., who at one time served as a state senator, died on Sept. 2, at the age of one hundred years and nine months.

Crowding in the Schools.— Although during the past few months thirty thousand additional sittings have been provided for the public school children of the city, by the completion of new buildings and the alteration of old ones, it is stated that the number of new pupils this autumn will amount to about thirty thousand also; so that, as was the case last season, some seventy thousand children will have to remain as half-time pupils, owing to lack of adequate accommodations for all.

Discharge of Nurse for Negligence.— An imbecile boy, seven years old, an inmate of the Children's Hospital on Randall's Island, recently received fatal scalds while in a bathroom of the institution alone with another imbecile lad; and as a result of his investigation of the matter the Commissioner of Public Charities has discharged the nurse who was in charge of the ward to which the children belonged "for neglect of duty and gross carelessness."

Deaths in New York for Three Months.— The condensed quarterly report of the Bureau of Records for the three months ending June 30, states that the number of deaths in the city during this quarter was 18,928, producing a death-rate of 18.29 per thousand of the population (estimated at 4,152,860), as against an average of 17,924 deaths for the corresponding quarters of the preceding five years, producing a death-rate of 19.06, a decrease of 0.77. Comparing the number of deaths from the principal causes with those of the preceding quinquennial averages of the corresponding quarters, corrected to correspond with the increase of population, the following decreases are found: Typhoid fever, 24; malarial fevers, 16; small-pox, 66; scarlet fever, 132; influenza, 15; tuberculous diseases other than pulmonary, 60; cerebral apoplexy, 42; organic heart diseases, 31; acute bronchitis, 142; Bright's disease and nephritis, 43; suicides, 41; whooping-cough, 50; diphtheria, 101; meningitis, 232; diarrheals under two, 34; sunstroke, 21; accidental deaths, 95. Those showing increases were measles, 221; pulmonary tuberculosis, 10; cancer, 6; lobar pneumonia, 124; homicide, 29. The number of deaths under one year decreased 38; those under five, decreased 165; those from ages five to sixty-five decreased 569, and those at ages sixty-five and over, decreased 46.

Mortality in August. — The weekly reports of the Health Department show that during the month of August the mortality in the city represented an annual death-rate of 18.81, as against 19.33 in July and 17.66 in August, 1905. The corrected death-rate, excluding non-residents and infants under one week old, was 17.43. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles decreased from 15.75 in July to 5 in August; the weekly average from scarlet fever, from 5.75 to 2.25; from diphtheria and croup, from 28.75 to 12; from epidemic cerebrospinal meningitis, from 11.75 to 9.25; from pulmonary tuberculosis, from 163.25 to 162; from acute bronchitis, from 14 to 13; from pneumonia, from 48.5 to 40.75; from diarrheal diseases, from 363.25 to 346; from diarrheals under five years of age, from 343.5 to 319.75;

from cancer, from 61 to 59; and from organic heart diseases, from 105.5 to 84.75. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 12 to 17; from whooping-cough, from 9.25 to 13; from bronchopneumonia, from 52 to 54; and from Bright's disease and nephritis, from 104.75 to 107.5. For the first time in the present year, no deaths were reported from influenza.

Miscellany.

NEEDS OF THE DEPARTMENT OF PUBLIC CHARITIES.

In a report which the Commissioner of the Department of Public Charities made to Acting Mayor McGowan on Sept. 5, he emphasizes the fact that an expenditure of no less than $12,157,000 in the immediate future is necessary in order that the affairs of his department may be placed in a reasonably efficient condition. Among the improvements which are required by the increasing demands are a new wing for the City Hospital on Blackwell's Island, to cost $3,000,000, a new wing for the Metropolitan Hospital, also on Blackwell's Island, costing the same amount, a new hospital in the Borough of Brooklyn, to cost $1,000,000, and additions to the Kings County Hospital, Brooklyn, to cost $750,000. Of the present Metropolitan Hospital he says that the building, which was erected in 1848 as a municipal insane asylum is altogether unsuited for hospital purposes, having been constructed in large part on the separate room, or cell, system, at a time when the scientific treatment of the insane was still in its infancy. Both the Metropolitan and City hospitals are now enormously over-crowded, and in both instances new buildings of modern construction and with modern appliances are absolutely necessary. A new hospital, costing at least $100,000, is also urgently required, he states, on Coney Island, where the present hospital building accommodates but six patients. Accompanying the report of the commissioner was one from F. F. Bauer, head of the Bureau of Dependent Children, in which he states that the number of petitions from parents to have their children committed to city institutions is increasing to an extraordinary extent, no less than 1,761 such petitions having been received during the past quarter. "One of the reasons for this," Mr. Bauer asserts, "is the slow, but sure, raising of the rents to an almost prohibitive figure, which compels many families, who have heretofore been able to struggle along, to break up their homes and seek to place their children in institutions. The lax immigration laws have also had much to do with filling the institutions with children. It is a daily occurrence to receive applications from people who have been in the country but a few months, asking to be relieved of the care of their children."

ADULTERATION OF CEREAL BREAKFAST FOODS.

The cereal breakfast foods as a class, according to Dr. Charles D. Woods and Prof. Harry B. Snyder, in a bulletin issued by the Department of Agriculture, are ordinarily free from adulteration. Various experiment station chemists and public analysts in states having pure-food laws have examined the brands on the market, as indeed they examine all classes of food at frequent intervals, and found that, as a general rule, they were made from good, sound grain without admixture of harmful substances. Some may be made from coarse milling products, such as wheat middlings, and some doubtless contain molasses, glucose, or other similar materials which do not appear in the manufacturer's description, but which are not injurious.

Occasionally the percentage of ash or mineral matter in breakfast foods is abnormally high, but this is apparently due to common salt added to give flavor and not as an adulterant. In general, it may be said that there is every reason to suppose that the manufacturers endeavor to use wholesome materials, and that if an impurity is occasionally found in their goods it is accidental rather than intentional. Furthermore, cereal breakfast foods, as previously noted, are generally made from well cleaned grain and are marketed in a cleanly way. In the case of the package goods the form of marketing affords special protection while the goods are in the dealer's hands and also in the household, where they are very commonly kept in the original cardboard box or package. —*Scientific American.*

Correspondence.

LETTER FROM LONDON.

British Association. Ray Lankester. Cancer Research. The Law Courts. General Paralysis. Professor Starling. Manuel Garcia. Noble Smith. Medicine of the State. Post-Graduate Study.

[*From Our Special Correspondent*]

London, Aug. 16, 1906.

Mr. Editor: If one may steal the thunder of Huxley, this part of the medical year may be described as of that "stale and flat weariness in which man delights not, nor woman either." Almost the only gleam of intellectual light has been shed by the presidential address to the British Association for the Advancement of Science. Prof. Ray Lankester took for his subject, a review of scientific progress during the past twenty-five years, and it is not entirely due to the fact of his being himself a biologist that a preponderant share of his attention was devoted to the branches of knowledge which particularly interest medical men. The properties of the elements discovered by chemists have been exploited by physicists to the great profit and advantage of diagnosis and treatment. Radium, and "emanations," "rays" of obscure origin and mystical properties have bulked so largely in the pronouncements of science, that the "man in the street" hardly gasped to find Professor Lankester talking glibly of transmutation of elements. Here was the

"Philosopher's stone," rived from the pleasant realm of medieval romance, and revived as sober, not to say intoxicating, fact.

True it is, Lord Kelvin, that veteran exponent of the cold logic of experimental proof, has quickly appeared in arms to champion Romance. Not yet, he says, are we to accept the probability of elemental transformation; not even yet are we prepared for all that glisters to become gold.

It is worthy of note that Professor Lankester says, "It seems to me . . . that the conclusions of Darwin as to the origin of species by the survival of selected races in the struggle for existence are more firmly established than ever." In this connection he referred at some length to the revival of the Mendelian theory and to the mathematical or statistical attack on the problem of heredity associated with the name of Karl Pearson. Both subjects are exciting a good deal of attention in the medical world here, and there is some hope that the obvious difficulties with which the question is beset may be overcome.

The "Eugenics" scholarship, founded by Galton, stands for witness to the confident expectation of valuable practical issues from these and kindred investigations.

The same hopefulness pervades the reports of cancer investigation. This portentous problem, till within the the last year or two but a will-o'-the-wisp, Fata Morgana, is attacked with feverish energy born of the general feeling that we are on the brink of discovery. In his last report, Dr. Bashford, of the Imperial Cancer Research, deals chiefly with experimental investigations. His inoculations with cancer cells, carried out on a very large scale, have given far more positive results than those of any previous investigators. Most suggestive are his attempts to modify the growth of cancer. Mice which have rid themselves spontaneously of one "*Jensen's tumor*" prove very refractory to re-inoculation. Similar "protection" may be conferred by the physiological processes which enable the mouse to rid itself of a tumor-graft of different histological structure, such as the sporadic adeno-carcinoma. "An injection of healthy blood may protect mice against the subsequent inoculation of Jensen's tumor being successful." Dr. Bashford is careful to point out the narrow limits of deduction from these "experimental" cancers.

Dr. Lazarus Barlow, Director of the Middlesex Hospital Cancer Research Laboratory, has also published a report. On the historical side he has developed his views as to the wide distribution of the endotheliomatous cell in malign neoplasms. He considers that endotheliomata account for, roughly, 9 or 10% of malignant diseases of the uterus, the breast, the tongue, the liver and bile passages and the bones. He has made investigations upon a number of substances commonly supposed to possess antecedent relationships with cancer, to ascertain whether they possess radio-active or allied properties. To think that after years of contumely and neglect by the cultured, the common clay-pipe should prove so endowed! It is worthy of note that experiments made in the cancer wards with the various alleged "cancer-cures" have all proved negative as regard results. The Paris Commission did not give Doyen's idea its final *quietus*, though clearly showing the bias of his wish upon his thought on viewing his "cures." Professor Wright, of St. Mary's Hospital, has had some very noteworthy results in treating inoperable cancer with vaccines derived from the *Micrococcus neoformans*, but he is very cautious in the interpretation of *his* results. It is generally reserved for quacks, who begin to flourish at this season of the year, with the sea-serpent, to cure cancer, but we have recently had the spectacle in London of a recognized surgeon venting a sardonic humor upon the profession in a popular monthly magazine, and not ashamed to state a reference to such a "cure."

We have recently had two "*causes célèbres*" of interest to medical men. In one, known as the "Christian Science," case the "Healer" was a registered medical practitioner; a renegade, however, and he could not be brought to book before the law for conduct, for neglect of his "patient," which would have arraigned him once and for all at the bar of the profession. I mention the case because no little obloquy was heaped upon the medical witnesses, and because incidentally was exemplified that curious inability of the legal mind to grasp the sense of *moral* responsibility which imbues all disciples of Hippocrates. The other case, the public inquiry into the sanity of the Marquis of Townshend, perhaps throws some light upon that very point, for it must puzzle a lawyer to find eminent alienists of contrary opinion in such circumstances. As a matter of fact, however, the explanation is simpler in this case than in some, for, as Mercier has pointed out, insanity, before the English law, is a disorder not of mind but of conduct. Hence it is, perhaps, that a confusion and disagreement arise which in the present state of psychological science might have been thought impossible.

The etiology of general paralysis is still the subject of discussion. The work and opinions of Mott upon the subject are too well known and accepted to demand mention, but there is still something to be said for the work of Ford Robertson, upon the part played by diphtheroid organisms. The negative results of Eyre and Flashman have not sufficed to stay the pen of Dr. Robertson.

Professor Starling's lectures upon the physiology of digestion, and in particular upon the intimate interplay of chemical with nervous reflexes, have not yet attracted the attention they deserve from physicians and surgeons. So extraordinarily intricate and delicate an association must be easily disturbed, and Starling has shown experimentally how fatal gross disturbance may be; it seems that here may lie an explanation of many obscure phenomena which crop up in, for example, general peritonitis.

The death of Manuel Garcia has robbed us of a venerable figure, dear alike to the musical and the medical worlds. It is pleasant to remember that both professions paid homage to the great old man, so recently as the early part of this year. Noble Smith, whose sudden death has occurred within the last few weeks, bore a name early familiar to every medical student from his association with Klein in the production of his "Atlas of Histology." He was senior surgeon to the City Orthopedic Hospital and well known for his work and his writings upon deformities and pediatrics in general.

Following on the lamentably early death of Fritz Schaudinn, we have to mourn the loss of another worker in the field of trypanosomiasis. Lieut. Forbes Tullock, R.A.M.C., who was engaged on work at Eutebbe, Uganda, for the Royal Society's Commission for the investigation of sleeping sickness, was accidentally infected by a knife wound, and died of the disease within four months.

In the presidential address to the American Medical Association, Dr. Mayo discussed a subject which concerns us very nearly in this country, and Prof. Ray Lankester in the address already referred to also deplored the light esteem in which the administrative and official departments of state hold men of science, and especially the medical profession. It is difficult to find any but disinterested motives for the fight which the profession is waging against disease in bulk; preventive medicine should command the eager co-operation of the legislature, and yet state medicine has had an uphill fight. It is true that public bodies have done and continue to do much towards dealing with tuberculosis by way of sanatoria, and to a certain extent by active educational propaganda. Again, there is an amendment to the education bill now before Parliament, the acceptance of which by Mr. Burrell amounts to a recognition of the necessity for adequate expert adviser. to the education department, and of the obligation upon those who compelithe child to go to school to see to it that the child is fit at entry and continues so throughout its schooldays. But England has been sadly behind you in America in these matters. Post-graduate study in London is now on a more satisfactory basis than heretofore. Not only is there an arrangement for attendance by graduates on the practice of almost all the great teaching hospitals at will, but there are now three special institutions, a polyclinic where practical demonstrations are given daily by many of the best known teachers in London, the West London Hospital Post-graduate College, and the London School of Clinical Medicine which has attracted to the Seaman's Hospital some of the most distinguished men in London. To this institution the School of Tropical Medicine under Sir Patrick Manson is affiliated.

C.

RECORD OF MORTALITY

For the Week ending Saturday, Sept. 1, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,482	629	Quincy	10	6
Chicago	561	211	Waltham	6	—
Philadelphia	—	—	Gloucester	6	4
St. Louis	—	—	Pittsfield	9	2
Baltimore	145	50	Brookline	5	—
Cleveland	—	—	North Adams	4	3
Buffalo	—	—	Chicopee	10	7
Pittsburg	—	—	Northampton	9	4
Cincinnati	—	—	Medford	7	2
Milwaukee	—	—	Beverly	3	—
Washington	—	—	Hyde Park	4	3
Providence	66	28	Newburyport	5	2
Boston	227	84	Leominster	—	—
Worcester	59	82	Melrose	6	1
Fall River	41	27	Woburn	5	1
Cambridge	23	8	Marlborough	5	4
Lowell	27	14	Westfield	—	—
Lynn	18	9	Peabody	—	—
New Bedford	31	17	Revere	4	—
Springfield	30	16	Clinton	1	—
Lawrence	24	10	Attleboro	7	5
Somerville	21	5	Adams	5	—
Holyoke	23	14	Gardner	—	—
Brockton	9	3	Milford	7	1
Malden	11	2	Weymouth	4	2
Salem	18	4	Framingham	—	—
Chelsea	11	3	Watertown	2	2
Haverhill	18	9	Plymouth	—	—
Newton	10	4	Southbridge	4	2
Fitchburg	12	6	Wakefield	—	—
Taunton	—	—	Webster	—	—
Everett	6	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUGUST 29, 1906.

Sawtelle, H. W., surgeon. Relieved from duty at San Francisco, Cal. Aug. 29, 1906.

Gassaway, J. M., surgeon. Relieved from duty at St. Louis, and directed to proceed to Philadelphia, Pa., assuming command of the Service and relieving Surgeon Fairfax Irwin. Aug. 22, 1906.

Godfrey, John, surgeon. Granted leave of absence for seven days from Aug. 26, 1906. Aug. 24, 1906.

Godfrey, John, surgeon. Granted an extension of leave of absence for fourteen days from Sept. 2, 1906. Aug. 29, 1906.

Irwin, Fairfax, surgeon. Relieved from duty at Philadelphia, Pa., and directed to proceed to Detroit, Mich., assuming command of the Service at that port, relieving Passed Assistant Surgeon Grubbs. Aug. 22, 1906.

Carmichael, D. A., surgeon. Detailed to represent the Service at the meeting of the Association of Military Surgeons, Buffalo, N. Y., Sept. 11–14, 1906. Aug. 28, 1906.

White, J. H., surgeon. Directed to proceed to Natchez, Miss., for special temporary duty, upon completion of which to rejoin his station. Aug. 29, 1906.

Wertenbaker, C. P., surgeon. Detailed to represent the Service at the meeting of the Association of Military Surgeons of the United States, Buffalo, N. Y., Sept. 11–14, 1906. Aug. 28, 1906.

Oakley, J. H., passed assistant surgeon. Granted twenty days' leave of absence from Aug. 30, 1906. Aug. 28, 1906.

Grubbs, S. B., passed assistant surgeon. Relieved from duty at Detroit, Mich., and directed to proceed to St. Louis, Mo., assuming command of the Service and relieving Surgeon J. M. Gassaway. Aug. 22, 1906.

Lumsden, L. L., passed assistant surgeon. Leave of absence granted Passed Assistant Surgeon Lumsden for two months from June 1, 1906, amended to read one month only. Aug. 23, 1906.

Corput, G. M., passed assistant surgeon. Granted one month's leave of absence from Aug. 30, 1906. Aug. 28, 1906.

McLaughlin, A. J., passed assistant surgeon. Granted leave of absence for one month from Aug. 15, 1906. July 26, 1906.

Rucker, W. C., assistant surgeon. Detailed to represent the Service at the meeting of the Association of Military Surgeons of the United States, Buffalo, N. Y., Sept. 11–14, 1906. Aug. 28, 1906.

Ward, W. K., assistant surgeon. Granted leave of absence for five days from Aug. 20, 1906, under paragraph 191 of the regulations.

Hunt, Reid, chief, division of pharmacology. Detailed to attend the meeting of the Council of Chemistry and Pharmacy of the American Medical Association, Indianapolis, Ind., Sept. 1, 1906. Aug. 23, 1906.

Harkin, F. McD., acting assistant surgeon. Granted leave of absence for twelve days from Aug. 28, 1906. Aug. 24, 1906.

Marsh, W. H., acting assistant surgeon. Granted leave of absence for nine days from Sept. 8, 1906. Aug. 24, 1906.

Taylor, A. S., acting assistant surgeon. Granted leave of absence for sixteen days from Aug. 19, 1906. Aug. 24, 1906.

Townsend, Wesley, acting assistant surgeon. Granted leave of absence for seven days. Aug. 24, 1906.

Woods, C. H., pharmacist. Granted leave of absence for seven days under paragraph 210 of the regulations. Aug. 28, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 8, 1906.

R. A. Marmion, medical director. To be placed on the retired list of officers of the navy, Sept. 6, 1906, in accordance with the provisions of Section 1444 of the Revised Statutes.

L. W. Curtis, surgeon. Detached "Pensacola," Naval Training Station, San Francisco, Cal., etc.; to home and wait orders.

C. E. Riggs, surgeon. Detached Navy Yard, New York, N. Y., etc.; to "Pensacola," Naval Training Station, San Francisco, Cal., and additional duty Naval Training Station.

P. T. Dessez, assistant surgeon. Detached "Severn"; to home and wait orders.

J. O. Downey, assistant surgeon. To Naval Hospital, Philadelphia, Pa.

C. N. Fiske, passed assistant surgeon. Detached "Marblehead" when out of commission; to Yorktown.

G. M. Mayers, passed assistant surgeon. Detached Navy Yard, Washington, D. C., etc.; to Marietta.

E. P. Huff, acting assistant surgeon. Appointed as acting assistant surgeon in the navy from Aug. 31, 1906.

RECENT DEATHS.

Frederick Albert Roberts, M.D., M.M.S.S., died in Wilmington, Aug. 11, 1906, aged thirty-three years.

John Theodore Heard, M.D., M.M.S.S., of Boston, died Sept. 2, 1906, aged seventy years.

Dr. John J. Higgins, of New York City, died on Aug. 28, in the seventy-ninth year of his age. He was graduated from the College of Physicians and Surgeons, New York, in 1850.

Dr. Neilson Abeel Baldwin, of Brooklyn, N. Y., died in the Methodist Episcopal (Seney) Hospital, Brooklyn, on Aug. 29, in the sixty-eighth year of his age. He was a son of the late Rev. J. Abeel Baldwin, and was graduated from the Yale Medical School in 1861.

Dr. William A. Dwight, Professor of Natural History at Vassar College, Poughkeepsie, N. Y., died suddenly at his summer residence, Cottage City, Mass., on Aug. 29.

BOOKS AND PAMPHLETS RECEIVED.

American Practice of Surgery. A Complete System of the Science and Art of Surgery. By Representative Surgeons of the United States and Canada. Edited by Joseph D. Bryant, M.D., and Albert H. Buck, M.D. Complete in eight volumes. Vol. I. Illustrated. New York: William Wood & Co. 1906.

Outlines of Practical Sanitation. For Students, Physicians and Sanitarians. By Dr. Harvey B. Bashore. Illustrated. New York: John Wiley & Sons. 1906.

Original Articles.

TWO CASES OF LYMPHATIC LEUKEMIA.

BY JAMES L. WHITNEY, M.D., BRANFORD, CONN

Lymphatic leukemia is now known to be a commoner disease than was supposed a few years ago. In many of the cases on record, however, the reports are defective in that the blood examination is meagre, or sometimes even lacking, and often no autopsy was done. Therefore no excuse is considered necessary for the publication of the following two cases, especially as each one shows several unusual features. No general review of the subject of leukemia is, however, attempted since the literature of the subject is already full, and these cases present no points which are essentially new. The first case is published by courtesy of Dr. W. W. Gannett, and the second by that of Drs. R. H. Fitz and H. F. Vickery.

Case I. K. M., a laborer, of forty-three, married, born in Canada, but a resident of this country for twenty-five years, entered Dr. Gannett's service at the Massachusetts General Hospital, June 5, 1905.

Family history: Father died of "old age" at seventy-six; 3 brothers, 1 sister, died in infancy; mother, 4 brothers, 1 sister, 4 children, living and well; 1 child stillborn. His physician says that the patient's people are "all anemic" — two or three relatives having died with severe anemia.

Previous history: Measles and mumps in childhood. His mother had scarlet fever when he was born, and he was "born with it." A "cold" last February, "like the present illness." Denies venereal disease.

Habits have been alcoholic.

Present illness: Some shortness of breath on exertion, for 2 months: otherwise perfectly well until 1 week ago, when he felt a tender spot on the roof of his mouth, which he picked with a tooth-pick. This spread, and is now an ulcer, from which his doctor to-day "cut off a piece of skin." Six days ago, his throat was sore, and he became feverish: his throat is still sore. Profuse sweats and occasional chilliness for six days; vomiting the past two nights. Appetite poor. Temperature, 104.2°. Pulse, 110. Respiration 32.

Physical examination: A well-developed and nourished man; skin somewhat dark; mucous membranes slightly pale. Pupils equal and react normally. Teeth fair, neglected. Tongue moist and clean; throat reddened. On the hard palate, just inside the two incisor and the canine teeth on the right side, is an ulcer the size of a dime, with a reddish edge, filled with a grayish, dirty débris; pressure above those teeth causes pain.

Heart: Apex felt in the 5th space, 4¼ in. to the left of the median line; left border of dullness 4½ in. to left; right border at the median line. Sounds quite irregular in force and rhythm; the pulmonic second sound is considerably accentuated and reduplicated; the first sound is sharp at the apex, and is preceded by a presystolic roll; a faint systolic murmur is heard just inside the apex. Pulses of fair volume, low tension; artery wall palpable at wrist and above elbow; visible pulsation of radials, brachials, carotids.

Lungs: Negative, except for some increase of vocal fremitus at the angle of the left scapula.

Abdomen: Level, held rather firmly, tympanitic; slight tenderness in the epigastrium; no masses palpable. Liver: flatness from the 6th rib to 1½ in. below the costal margin, where the edge is indistinctly felt. Spleen: not made out enlarged to percussion, nor felt. A few glands in the neck, the right axilla and the groins, the size of peas. External genitals negative, except for a few small nodules along the right cord. Knee-jerks and plantars normal. No edema.

The urinary examination showed normal color, acid, sp. gr. 1020, a slight trace of albumin; urea 2.14%, chlorides normal, bile, sugar, diazo reactions negative; sediment shows a rare hyaline and brown-granular cast, and a few large and small round cells; daily amount from 40 to 70 ounces.

The blood showed hemoglobin, 80%, leucocytes 78,400. The stained specimen shows slight achromia, poikilocytosis, polychromatophilia, and granular stippling of the red cells. Differential count of 500 leucocytes gave polynuclear neutrophiles, 2.4%, basophiles, 97.2%, eosinophiles and myelocytes, 0, mast-cells, .4%. During this count, 19 normoblasts and 3 megaloblasts were seen.

The subsequent history of the case was as follows: On the 7th he is noted as being restless, and complaining of headache; the ulcer in the mouth dirty; the gums swollen and spongy, with small punctate ecchymoses. On the 10th he was fairly comfortable, but apathetic. By the 14th he had lapsed into a marked typhoidal state; difficult to arouse, stupid, lying with half-closed eyes, breathing through his mouth, with twitchings and irregular motions of the arms; this state became more marked as time passed. The area of gangrene in the mouth slowly spread, until it in-

Date.	Hgb. Per Cent.	Whites.	Reds.	Polyneutrophiles. Per Cent.	Total Basophiles. Per Cent.	Large Basophiles Per Cent.	Small Basophiles. Per Cent.	Myelocytes. Per Cent.	Mast Cell Per Cent.	Blast per 1000 White. Megal	Norm
June 5, 1905 . . .	80	78,400		2.40	97.20				.40	6	38
June 7	75	79,400	3,032,000	2.00	97.50	93.00	1.50	.50	0	7	27
June 11	75	61,200	3,104,000	4.50	94.75	89.75	5.00	.75	0	3	15
June 13	75	86,700	2,608,000	2.75	96.25	89.75	6.50	1.00	0	1	3
June 15	75	153,100	3,192,000	3.00	95.00	92.00	3.00	2.00	0	5	13
June 17	75	182,200	3,504,000	1.00	97.50	94.25	3.25	1.50	0	6	9
June 19, 3 P.M. . . .	75	319,600	2,800,000	.75	98.50	91.00	7.50	.50	.25	9	10
June 20, 7.30 P.M. .		514,800		2.50	94.50	88.00	6.50	3.00	0	10	19
June 21, 8.30 A.M. . .		421,200		2.75	92.50	88.75	3.75	4.25	.50	8	16
June 21, 5.15 P.M. .		576,000		1.00	95.75	90.75	5.00	3.25	0	11	14

volved fully one-half the hard palate, running up the outer surface of the alveolar process, one of the incisors dropping out the day before he died. The odor of the patient's breath was very offensive. On the 20th numerous petechiæ appeared over chest and back, which by the next morning had spread to the belly, with a few on the limbs. No change in the examination of the heart. Urine and feces involuntary. He was comatose all day on the 21st, and died at 5.25 P.M. It is noted that the spleen had never been felt, and that the glands did not enlarge above the degree noted above, *i.e.*, within normal limits.

The blood examinations made at various times were as shown in table on preceding page.

The last examination of the blood was made within ten minutes before death, and the following note is made on the findings:

The expressed drop is dark and viscid, and is difficult to squeeze from the ear. The smear shows moderate diffuse polychromatophilia, and some variation in size and shape of the reds. There are many anomalous and unusual forms of cells, many of which are hard to classify, (also true to a lesser extent of the last two specimens); *e.g.*, a number of mitotic figures in the large basophiles, also in the blasts; several large basophiles inclosing extruded nuclei of blasts; blasts in endless varieties of fragmentation of nuclei, fragmentation, necrosis, and loss of staining power of cell-substance. Almost no blood-plates present. Many faint, bluish disks present, half the size of a red cell, apparently formed by the pinching off of the protoplasm of the large basophiles; several large basophiles seen, apparently undergoing this process. At least half the basophiles show more or less marked necrotic changes. There are a very few eosinophiles (both polynuclears and myelocytes) present, not more than one in several thousand leucocytes.

In the description of the blood, the term "lymphocyte" has been avoided for a variety of reasons. It seems hardly possible, in so abnormal a blood as this, to differentiate accurately between the various forms of basophilic cells, such as "large and small lymphocytes," "large mononuclear leucocytes," "Türck's cells," etc., even if it be possible in a normal blood. Furthermore, there is some reason to believe that the large cell characteristic of acute lymphatic leukemia is not a constituent of the normal blood (Sternberg), and it is possible that it may not belong in the lymphocyte class at all, but be more nearly related to the myelocyte, so-called. The cell in question, forming from 88% to 98% of the leucocytes in this case, may be described as follows: in size it varies from the diameter of a red cell to twice as much, or even more. The nucleus is round, or slightly indented, and almost fills the cell, though the width of the surrounding rim of protoplasm varies to some degree. By Wright's stain, the nucleus is stained darkly, but shows a fairly well-marked reticular structure; the protoplasm stains a lighter blue, usually a little darker about the edge of the cell, and in almost every case shows in more or less marked fashion the presence of purple or violet granules; usually very small, often hard to see, but sometimes coarse and conspicuous. By Wright's stain alone it would be difficult to be certain that many of these cells are not myelocytes, for, although differences are evident in a perfect stain, these are hardly greater than might be simulated by a less successful stain; *i.e.*, a "blue" stain would make a myelocyte look like a lymphocyte, and, conversely, a "pink" stain would make lymphocyte look like a myelocyte. By Ehrlich's stain, however, the cells are seen not to be myelocytes, the protoplasm staining a faint violet, without granules, and the nucleus a faint uniform skyblue. There are, however, a few characteristic, true Ehrlich myelocytes present, as noted above.

The autopsy report follows, by Drs. J. H. Wright and O. Richardson.

ANATOMICAL DIAGNOSIS.

Leukemia [large-cell lymphatic (?)]. Verrucose and fibrous endocarditis of the mitral valve. Hypertrophy and dilatation of the heart. Infarcts of the spleen and kidneys. Hemorrhagic areas in the skin, peritoneum, pericardium, endocardium and mucosa of the stomach. Chronic passive congestion. Chronic pleuritis. Obsolete tuberculosis of the lower lobe of the left lung. Lymphatic hyperplasia of the bone marrow. Leukemic infiltration of the liver, kidneys and certain lymph nodes.

The body of a man forty-three years of age, 173 cm. long, well-developed and poorly nourished.

Head: not examined.

Trunk: the skin over the anterior wall of the thorax, and the upper part of the anterior abdominal wall is thickly studded with innumerable, small, dark-purplish areas; elsewhere the skin shows a few similar faint areas. In the skin in the region of the right hip there is a small bed-sore.

On section, the subcutaneous fat is small in amount.

The peritoneal cavity is free from fluid, and the peritoneum is smooth and shining, but presents in a few places small purplish-red areas. The appendix is not remarkable. The pleural cavities are free from fluid. The lungs present a few adhesions.

The bronchial lymphatic glands are not remarkable. On section, the lung tissue presents no areas of consolidation. The tissue of the lungs generally is slightly leathery, somewhat salmon-tinted in color, and yields a considerable amount of yellowish-red frothy fluid. In the upper portion of the lower lobe of the left lung, there are two small fibro-calcareous masses. The pleura of the left apex presents a small puckered fibrous pigmented scar-like area. The pleura of the right apex presents a whitish thickened scar-like patch.

The pericardium is free from fluid, and the visceral layer presents several small purplish-red areas.

Heart: 400 gms. The myocardium on section is fairly firm and pale. The left ventricle wall measures 1 cm., the right ventricle wall 3 mm. The left auricular wall is thickened. The cavities are rather large. The mitral valve circumference, 5.7 cm., the curtain of the valve generally shows fibrous thickening, with 2 or 3 irregular scar-like depressions in the thickened free edge of the valve. In these situations small patches of minute, grayish-red granulations are present to which minute masses of reddish fibrinous material are adherent. The chordæ tendiniæ are thickened and shortened. The aortic valve (circumference 7 cm.), together with the remaining valves, is not remarkable. The endocardium in several places shows a few small purplish-red areas. Coronary arteries free. Aorta smooth. Along the aorta there are a few slightly enlarged retro-peritoneal lymphatic glands, which, on section, are not remarkable.

Liver: 2350 gms. On section, the tissue is fairly firm, pale brownish-red in color, showing here and there reddish mottling. No stones in the gall bladder; bile ducts free.

The pancreas, on section, is not remarkable; the duct of Wirsung is free.

Spleen: 220 gm. On section, the tissue is of the consistency and appearance of thick, dark-reddish paint. In two or three places the surface of the organ shows small, smooth, yellowish areas, which, on section, are seen to be the outer surfaces of small, firm, yellowish homogeneous masses, sharply defined from the surrounding splenic substance.

Adrenals not remarkable.

Kidneys: Combined weight, 400 gms. The capsules are slightly adherent, and leave on stripping a very slightly granular surface. In the surface of one kidney there is a small yellowish area, which, on section, is seen to be the outer surface of a small yellowish homogeneous firm mass, with red margins which mark it out distinctly from the surrounding kidney tissue; the mass extends but a short distance into the kidney substance. In the other kidney there are three rather minute similar masses, but not so well marked. On section, the tissue is rather soft; the markings are retained; the cortex measures 5 to 6 mm.

The genito-urinary organs are not disturbed.

The esophagus on section is not remarkable.

The stomach, on section, presents in the mucosa innumerable small discrete and confluent reddish spots and areas.

The intestines are not remarkable.

The mesenteric lymphatic glands are visible, and on section are gray-white in color, firm and homogeneous.

The marrow of the right femur is rather meaty, pale grayish-yellow in color with tinges of red in places. The marrow of the vertebræ is rather soft and pale.

Bacteriological Report.— Cultures on blood-serum: Heart, no culture made on account of restricted incision required. Liver, no growth. Spleen, no growth.

Microscopical Examination.— Three sections of the spongy bone of a vertebral body show the marrow spaces filled with rather small cells to the exclusion of fat tissue. Extremely few giant cells, megacaryocytes, are present. A smear of vertebral marrow, stained with Wright's blood-stain, shows it to be made up chiefly of cells representing all grades of transition from large and small lymphocytes, through lymphocyte-like cells with violet granulations, to cells not distinguishable from Ehrlich's myelocytes. The cells of the marrow correspond in character to the cells observed in a smear from the blood during life (see clinical record). Sections of the marrow of the shaft of the femur show moderate replacement of the fat tissue with cells apparently like those in the vertebral marrow. No giant cells are seen.

Among several sections of lymph nodes, some show infiltration with cells not inconsistent in appearance with those in the blood and in the marrow.

Liver: Capillaries in many areas dilated and filled with cells like those in the marrow.

Spleen contains many small cells not unlike those seen in the marrow.

Kidney: Cloudy swelling of the epithelium; over a small area, some infiltration with cells similar to those in the marrow.

The leukemic process in this case seems to be due primarily to a pathological condition in the bone-marrow, with secondary involvement of other organs. For that reason, it might be classed as a myelogenous leukemia, but the character of the leucocytes in the blood is said by clinicians to require its classification as a large-celled lymphatic leukemia.

The predominating cells in the blood and in the marrow are not the typical myelocytes of Ehrlich.

Several points in this case deserve comment. The resemblance of the clinical picture to that of typhoid fever, with a consistent temperature-curve, is characteristic enough of acute leukemia. The necrosis in the mouth is also a very frequent occurrence, and the similarity of the process here to the so-called "cancrum oris" would suggest that in some of the cases recorded in literature under the latter title a blood examination might have shown a leukemia as the primary condition.

The rapidity with which the leucocyte count rose in this case deserves notice. It will be seen that the great increase began six days before death, there being a gain of 66.000, then of 29,000, then of 137,000, in two-day intervals, then of almost 200,000 in one day, then a loss of 90.000 in thirteen hours, followed by a gain just before death of 150,000 in nine hours. Fraenkel reports a change from 144,000 leucocytes at 11 A.M. to 256,000 at 6 P.M., but this seemed to be a diurnal variation rather than an actual increase. We have seen also a rise of nearly 100,000 immediately following exposure to x-rays in a case of myelogenous leukemia, but this again was not permanent. Kelly reports a case that showed great variation in the few hours before death, partly as the result of a saline infusion: thus, April 1, 208,600; April 2, 243.400; April 3, 332,400; April 4, 314,400; April 5, 10.30 A.M., 406,000; 11 A.M., 268,000 (after the infusion); 5 P.M., 567,000 (death at 6.25 P.M.), neglecting the temporary effect of the infusion, it is seen that there was an increase here of 160,000 in 6½ hours, and of 250,000 in something over 24 hours.

A more important consideration is suggested in this case by the almost complete absence, both clinically and at autopsy, of the enlargement of the lymphatic apparatus demanded by the classical picture of lymphatic leukemia according to Erhlich; the consideration, namely, of whether, in reality, the so-called "acute lymphatic leukemia" is not myelogenous in origin. The original theory of Ehrlich, to which he and his scholars still adhere, was that lymphatic leukemia is a disease primary in the lymph glands, and that the changes in the bone marrow are the result of infiltration from the blood, and analogous to that in liver, kidneys, etc. Others, however, of whom Pappenheim is the foremost, and following him Walz, Kelly, Reed, etc., have reported cases in which, as in the one here reported, there is little or no lymphatic or splenic enlargement, and there are profound changes in the bone marrow. For this reason, Pappenheim considers all leukemias myelogenous (that is, etymologically, having origin in the bone marrow); that in the so-called lymphatic (or lymphoid or lymphocytic) forms, one element only of the marrow proliferates, viz., the lymphoid element, while in the so-called myelogenous form (or myeloid, myelocytic, or mixed cell), there is a proliferation of all the cellular elements of the marrow. Another view is that the cell characteristic of the acute leukemia, usually called a large lymphocyte, is really not lymphoid in character, but is a close relative of the Ehrlich myelocyte, in which case it might be called a "basophilic myelocyte" and be added to the already recognized "neutrophilic," and "eosinophilic myelocytes." The literature on the subject is already too voluminous to be more than mentioned here, but is reviewed in both Kelly's and Sternberg's articles, where complete bibliographies will be found.

Case II. B. C., a child of six years, born in Massachusetts, but of Jewish parentage, entered the Massachusetts General Hospital on Dr. R. H. Fitz's service, Nov. 10, 1903.

Family history: Parents and two brothers living and well; one brother died of diphtheria.

Past history: Measles at two; "tonsillitis" often.

Present illness: For the past five or six weeks, the child has been "grumbling," and has had more or less cough; two weeks ago, she "caught cold"; a discharge from the nose, and her throat was sore; for one week, "chills and fever" every day; sleeps poorly and cries out at night; bad headache and pain in the neck and back; has grown pale, has lost some weight, and is rather short of breath; urine "like coffee."

Physical examination: Well-developed and nourished child. Slight pallor of the skin and mucous membranes; slight puffiness about the eyes. Pupils normal. Tongue heavily coated but moist. Tonsils moderately enlarged, but throat otherwise negative.

Heart: Apex felt in the 5th space, 2¾ in. to the left of the median line; left border of dullness 3 in. to the left, ¾ in. outside the nipple; right border 1 in. to the right of the median line. Sounds rather irregular in force and in rhythm, the first at the apex is short and sharp, and the pulmonic second sound is accentuated; there is a low-pitched systolic murmur all over the precordia, best heard at the apex, and transmitted a short distance toward the axilla; there is also a slight systolic thrill at the apex and in the pulmonic area. Pulses of good volume, low tension (108 mm. by Riva-Rocci).

Lungs negative. Abdomen slightly distended, but soft and tympanitic, with no tenderness, and no masses palpable. Liver: Flatness from the 6th rib to the costal margin: edge not felt. There are a few small palpable glands in the neck, axillæ and groins. Knee-jerks normal. No edema. Temperature, 101.3°. Pulse, 112. Respiration, 32 (these fell immediately to normal and so remained).

Blood: Hemoglobin, 70%, leucocytes, 37,200.

Urine, dark brown, acid, with a large trace of albumin; bile, sugar, and diazo tests negative; urea 1.64%. The sediment shows numerous fine granular casts, with renal cells and blood corpuscles adherent, and many abnormal and a few normal blood corpuscles; considerable amorphous material and numerous leucocytes. The daily amount varied from 35 to 60 oz.

The child stayed in the hospital 3 weeks, the urinary condition clearing up practically entirely. The leucocytes were on the 12th 28,600, on the 17th 29,200, on the 19th 29,700, on the 21st 23,300, on the 24th 27,700, on the 28th 28,200, and on Dec. 1, 25,200. On Dec. 1, she was discharged much relieved, with a diagnosis of acute nephritis. It is to be noted that the child during her stay maintained a considerable leucocytosis: it is to be regretted, in the light of the further history of the case, that a stained specimen of blood was not examined at this time.

After this the child reported frequently to the outpatient department of the hospital. On March 26, 1904, the note is "well for 2 weeks after leaving the hospital, then sick for 4 to 5 days, and has had attacks of 'high fever' every 2 to 3 weeks since." After this, she remained fairly well except for various complaints of her nose and throat, until a year later (May, 1905), when her mother said she had "high fever" every night for 3 weeks, and for a week "chills and fever" every day. Examination was negative, the spleen not felt, and the temperature was normal. A smear of blood was examined for malaria with a negative result. After this she was well again until the last week in June, when she lost her appetite, began to seem sick again, complained of fever and chilliness, and of obstruction in the nose and a nasal discharge. These symptoms continued through the first 3 weeks in July, and the child was again sent into the hospital on the service of Dr. Vickery, July 19, 1905, with a question of typhoid fever (temperature 103.6° and a palpable spleen) and for tonsillar ulceration.

Physical examination showed both tonsils enlarged, and the right covered with a large dirty white patch (culture gave staphylococci). Cardiac apex inside the nipple, with no enlargement to the right; a systolic murmur all over the precordia, loudest at the apex; the pulmonic second not accentuated. Lungs negative. Abdomen scaphoid soft and tympanitic, with no tenderness; intestinal masses in both iliac fossæ. Liver, flatness from the 5th rib to the costal margin; edge easily felt. The spleen is felt ¾ in. below the costal margin, the consistency being hard. There are a number of discrete glands in neck, axillæ and groins, the size of peas. Reflexes normal. Much lanugo hair on the back.

Blood: Hemoglobin 65%, whites 6,000, reds 2,520,000. Beyond slight variation in size the reds show nothing remarkable. Differential count of 400 cells shows neutrophiles, 59.50%, basophiles 90.25%, eosinophiles .25%, 2 megaloblasts seen. Widal reaction negative.

Urine: Normal in color, acid, of sp. gr. 1022, with a slightest possible trace of albumin; bile, diazo, sugar tests negative; urea 3.53%. Sediment very slight, and showed no casts.

The subsequent history: The ulcer in the throat slowly spread to the soft palate and uvula, which by Aug. 4, had sloughed off; the ulcer persisted for 2 weeks longer. The temperature, as shown by the chart, came slowly to normal (Aug. 3), and 10 days later the child seemed very well, and was beginning to sit up. For the week, however, between Aug. 22 and 29, there was a sharp rise in temperature (to 105°), and the child seemed not so well. Nothing new found on examination; the liver and spleen still large. After this temperature subsided, the convalescence was again slow, but nothing of interest occurred until the child was discharged Oct. 7, seeming practically well.

The results of the frequent examinations of the blood are given on p. 303:

No further differentiation was made of the class of basophiles, but of these about 80% were small lymphocytes, the size of a red cell or less.

The child entered the hospital for the third time Dec. 29, 1905, with the following story: After leaving the hospital 3 months ago she was well enough until within 2 weeks, though never robust, and always inclined to be listless; no feverish attacks. Two weeks ago yesterday, mother thinks she became chilled; she complained of chilliness, but had no chill. Since then she has been in bed most of the time with a constant fever, and much sweating. The same day her right knee became swollen and tender; this lasted one week, when her right hand became swollen and tender; two or three days ago her nose became swollen and dark red, with a discharge from it. The child slept badly, and seemed sick, though complaining of but little.

The physical examination was in most particulars just as before; the throat, however, was healed, with the uvula absent, and the liver and spleen were a little larger than before, the former being felt one inch below the costal margin, and the latter showing an area to percussion of 2½ x 3¼ in., and being felt 1½ inch below the costal margin. Four or five glands in each groin, a few in the axillæ, and many in the neck, the size of peas. No nasal discharge. Joints negative. Temperature, 100.2°. Pulse, 120. Respiration, 28.

Date.	Hgb. Per Cent.	Whites.	Reds.	Neutrophiles. Per Cent.	Basophiles Per Cent.	Eosinophiles. Per Cent.	Mast Cells. Per Cent.	Myelocytes. Per Cent.	Blasts Seen in Counting 400 Whites. Megal.	Normo
July 19	65	6,000	2,520,000	9.50	90.25	.25	0	0	2	0
21	55	3,200	2,886,000	16.75	81.75	1.50	0	0	2	0
24	45	4,800	2,454,000	7.00	92.75	.25	0	0	0	0
26	50	5,200	2,560,000	16.75	82.75	.25	.25	0	0	1
28	60	3,600		18.25	81.75	0	0	0	1	2
31	55	4,300		16.75	82.75	.25	.25	0	1	1
Aug. 3	50	5,800	2,618,000	15.50	84.50	0	0	0	0	0
7	50	6,500		14.25	85.75	0	0	0	0	1
11	65	7,100	2,352,000	11.75	88.25	0	0	0	0	0
15	55	7,200		13.25	85.75	.50	.50	0	1	0
20	60	3,700	2,288,000	9.75	90.00	0	.25	0	0	1
25	45	5,200		8.00	91.25	0	.25	.50	1	0
30	45	2,700	1,684,000	8.50	91.25	0	.25	0	0	0
Sept. 4	40	3,500		14.25	85.25	.25	0	.25	2	3
9	55	4,200	1,990,000	13.75	85.75	0	0	.50	2	0
14	50	4,200		15.50	84.50	0	0	0	1	1
21	65	10,700	3,164,000	34.25	64.25	.25	.75	.50	0	0
24		8,400								
28	75	8,200	3,492,000	28.40	70.80	.80	0	0	0	1 in 250
Oct. 1		9,900		26.25	72.25	.50	.50	.50	1	0
5	80	9,100	3,476,000	33.75	64.50	1.00	.75	0	0	0

Blood: Hemoglobin 85%, whites 13,400, reds 2,488,000. Very slight achromia and poikilocytosis, with a few microcytes; no polychromatophilia, stippling, parasites, or blasts. Differential count of 300 cells shows neutrophiles 2.6%, basophiles 97.3%.

At this time the child did not seem very sick, and was up and about after the first few days, but by Jan. 10, was in bed again, because of the onset of a considerable fever (104°), for which no cause could be found on physical examination. This continued, and on Jan. 17, the following note is made; Since the onset of the fever a week ago, the patient has grown rapidly worse, especially in the last few days; 105° +, pulse 140–150. She received a slight blow on the eye from a child in the next bed several days ago, and to-day had a large subconjunctival hemorrhage out of all proportion to the injury. Bleeding from the gums. Rare petechial spots the size of a pinhead over upper chest to-day, and slight mottling of the feet and legs. Chill this morning. To-night twice vomited brownish material. Restless; complains of pain in the legs; growing delirious. The onset of the fever corresponded with a fall in the white count, and a diminution in the size of the spleen; two days ago the spleen was about as at entrance; the dullness 3½ x 2 in., and the edge felt ½ in. below the costal margin; to-day the spleen was not felt, and the area was tympanitic. Glands as at entrance. A few moist râles at the bases. Died at 10.55 P.M., with failure of the heart and the respiration.

Blood examinations were made as follows:

Date.	Hgb. Per Cent.	Whites.	Reds.	Neutrophiles. Per Cent.	Basophiles. Per Cent.	Eosinophiles. Per Cent.	
Dec. 29	85	13,400	2,488,000	2.6	97.3	0	No blasts.
Jan. 2		28,800		3.0	96.6	.3	,,
5	75	36,600	2,600,000	0.6	99.0	.3	,,
9		33,600		1.3	98.3	.3	,,
12	50	18,900	2,016,000	2.6	97.3	0	,,
16		3,300		3.0	97.0	0	,,
17		1,700	1,384,000				

The autopsy report by Dr. J. H. Wright is as follows:

ANATOMICAL DIAGNOSIS.

(Lymphatic leukemia.) Hyperplasia of the spleen and of various lymphatic glands. Slight leukemic infiltration of liver and kidneys. General anemia. Ecchymoses in the epicardium. Defective closure of the foramen ovale. Streptococcus septicemia.

The body of a girl eight years of age, 119 cm. long, well-developed and rather poorly nourished. The skin extremely pale. Subcutaneous fat small in amount. In the peritoneal cavity probably 50 or 100 cc. of serous fluid. The anterior margin of the right lobe of the liver is 1 cm. below the costal margin in the right mammillary line. Diaphragm on both sides at the 4th interspace. No fluid in the pleural cavities: the lungs are free from adhesions. The substance of the lungs extremely pale and rather bloodless in appearance.

Heart: 105 gm. On the epicardium here and there red spots and points. The valves and cavities are not remarkable. The myocardium is pale. The foramen ovale is incompletely closed. There are two or three small openings in its closing membrane in addition to a small opening due to imperfect closure of the foramen. The largest opening is probably 5 mm. in its greatest diameter. The aorta shows, at a point corresponding to the ductus arteriosus, a slight ridge-like elevation in its intima.

Liver, not remarkable.

Spleen 97 gm. It is rather larger than normal, but on section is not remarkable.

Kidneys: The capsules removable, leaving a smooth surface. On section the cortices are of normal width and markings. The renal tissue is pale and bloodless in appearance.

The stomach is not remarkable.

The mesenteric lymphatic glands are of about normal size, and in some instances are reddish in color. At the brim of the pelvis in the retroperitoneal tissue one reddish lymph-gland noted, about 2 x 1 cm. in greatest dimension. The bronchial lymphatic glands are not especially enlarged. In the retroperitoneal tissue near the aorta one reddish lymphatic gland observed; this is not especially enlarged. The Peyer's patches in the lower end of the ileum are visible, and show a fine blackish mottling. They are not markedly enlarged.

Head not opened.

Bacteriological Report. — Culture on blood-serum. Spleen: a profuse growth of the streptococcus pyogenes.

Microscopical Examination.— Medium-sized sections of a vertebral body show the following principal abnormalities of the marrow. In places the marrow-tissue is represented by a tissue containing rather numerous small cells which are apparently nucleated red cells and lymphocytes, and a granular reticulated eosin-staining material. In other places the marrow is represented by a tissue containing fewer cells than normal marrow, and much eosin-staining granular detritus and fibrillary reticulum. In these places there are a good many large, irregular-shaped cells, mostly with single or paired nuclei of medium size and a relatively abundant cytoplasm with ragged margins. Among these larger cells are some undoubted megacaryocytes, typical examples of which are, however, few in number. Fat tissue is practically absent from the marrow.

Sections of lymph nodes, and of a follicle of the small intestine show nothing remarkable.

Spleen: The tissue is rather rich in lymphoid cells, but the follicles are not larger than normal. A few megacaryocytes are present.

Liver: Slight infiltration by lymphoid cells along the interlobular branches of the portal vein. Necrosis of the central portions of the lobules.

Kidneys: Some cloudy swelling of the epithelium of tubules. At one point a small area infiltrated with lymphoid cells.

Stomach not remarkable.

From the anatomical examination alone of this case, it would be impossible to make a diagnosis of lymphatic leukemia. The clinical history, however, shows that the case is one of undoubted lymphatic leukemia, in which a remarkable change in the character of the blood occurred toward the end of life.

The unique feature about this case is, of course, the low white-count; not for one or two observations, for such instances are common enough, especially as the result of a terminal infection, but over a prolonged period — three months certainly, and without doubt much longer. In fact, there was, on the second visit to the hospital (July, 1905), a fairly marked leucopenia during what seemed to be the active stage of the disease, that is, from July to the middle of September, and, when recovery began, the white-count rose to what should be considered nearer the normal (8,000–10,000), and the ratio of lymphocytes to neutrophiles changed from 10 to 1, as it had been, to 2 to 1, which may be considered almost within normal limits for a child; and this change in the blood coincided in time with a marked betterment in the child's general condition. At this time the diagnosis was much in doubt. It was felt, in view of the overwhelming preponderance of lymphocytes in the blood, that a diagnosis of lymphatic leukemia was probable in spite of the low white-count, though certain alternatives were considered, even granting, to begin with, that it was a blood disease. Such a preponderance of lymphocytes in a low white-count is said by many to be characteristic of Hodgkin's Disease, but here there was no glandular enlargement. The more or less discredited "anemia pseudoleukemia infantum" might also have suggested itself. Pernicious anemia was another possibility, but there was never anything in the appearance of the blood suggestive of this. If the evidence had rested there, the case would have remained, as it was then, a very unsatisfactory one, but, with the return of the child in December, the value was shown of repeated examinations of the blood, and it is considered that the diagnosis of leukemia was confirmed beyond a doubt. For with a count of 36,600, of which 99% were lymphocytes, what other diagnosis could be entertained? The fall in white-count shown in the last three observations is considered of less importance than the previous low counts, for, in the presence of the septicemia afterward shown to exist, this was to have been expected.

We have not been able to find in the literature another case in which more than one or two observations were made of a low white-count in a case of undoubted leukemia. Plehn reports a case where a count of 160,000 later dropped to 9,375, with great improvement in the symptoms; the stained specimen was said at this time to be "normal" without further particulars given; after 2 to 3 weeks, however, the count began to rise again, and later reached 65,000 before death. Blumer reports a case which was "clinically Hodgkin's Disease, but like leukemia at autopsy," in which of 8,000 leucocytes 92% were lymphocytes; in this case glands, spleen and liver were enlarged; only a single blood examination is recorded. Blackader and Gilli give another single observation in a fatal case with 85% of lymphocytes in 6,300 leucocytes, and marked glandular enlargement; no autopsy. Kelly reports a case which of all these is most like the present, in a male of forty-eight: Aug. 5, 9,000; large lymphocytes 94%, small lymphocytes 4%, polynuclears 1.5%; Aug. 13, 6,000; large lymphocytes 87.5%, small lymphocytes 9%, polynuclears 1.5%; Aug. 19, 5,200; Aug. 27, 18,200; Sept, 8, 37,600, large lymphocytes 96%, small lymphocytes 2%, polynuclears1.5%.

From this evidence, then, we must conclude that certain cases of leukemia can maintain a low white-count for considerable periods, though the disease seems active, and that in such a case the preponderance of lymphocytes may remain great; also that remissions may occur during which the blood may approach fairly near to the normal, with marked betterment in general condition.

As to the autopsy in this case, it must be admitted that it does not give us very satisfactory information. There is apparently but little pathological about the lymph-glands or spleen, and, although here, as in the first case, the process would seem to have origin in the bone-marrow yet the marrow itself gives but little evidence of value. (The family of the child allowed but a six-inch abdominal incision, therefore the marrow of the long bones could not be examined.)

The case, then, both in clinical history and in the findings at autopsy, is far from being a typical one of leukemia, but from that very fact, perhaps, derives its chief interest and value.

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TRACHOMA.*

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TRACHOMA is variously known as granular lids, granular ophthalmia and Egyptian ophthalmia. The expression or term "granular lids" should be discountenanced because it is so commonly used to describe totally different affections of the palpebral conjunctiva.

My experience in obtaining histories from patients convinces me that almost any form of conjunctivitis, if there is the slightest roughening, is called granular lids, and as such is treated for months at a time with no particular benefit, simply because in the vast majority of instances the chronic congestion, even though it has thickened the conjunctiva, is due to eyestrain, and will not respond to treatment until the error of vision is neutralized.

It is said that trachoma originated in Egypt where it is endemic and from whence it has spread over practically all the countries of the temperate and tropical zones. But this bit of history has no significance for us to-day, except that it emphasizes the fact that the disease is widespread. Certain races seem to be particularly susceptible, such, for example, as the Irish peasants and Polish emigrants, and it is because of the rapid swelling of our local population by the Polanders, that I call your attention to the importance of being on the lookout for this disease.

There has been a good deal of discussion as to whether or not true trachoma is a germ disease, and, of course, this discussion has been coincident with very much scientific investigation. But as in syphilis, though one may feel that it must be due to a specific germ, yet up to the present time such a one has not been found constantly in any consecutive series of investigations. But whatever its true cause may be, the fact remains that it is one of the most dangerously contagious diseases with which we have to deal.

Those of you who are familiar with the history of the Crusades must have been appalled at the ravages of this scourge. From the earliest time, no returning pilgrimage from the Holy Land, whether militant or religious, but what left its mark upon Europe by fresh inoculations. Napoleon himself found it an insurmountable barrier, and some author has said that in his campaign of 1798 over 20,000 of his followers contracted the disease. In the light of this fact it is easily believed that the resulting epidemic in Europe lasted thirty years, and that over one million people were infected.

VARIETIES AND CLINICAL PICTURE.

If we have not located the specific cause we do know that there are several predisposing factors which should be given consideration. Chief among these are personal uncleanliness, poor food and unsanitary surroundings, all of which lower the individual resistance. Then there is a racial predisposition as hinted at before. Given the above factors with impaired resistance of the conjunctiva and contact with the secretion from the acute form, and in the majority of cases we have the disease established. Once started we usually have the following picture:

ACUTE FORM.

This strongly resembles certain other forms of acute conjunctivitis. The eye is congested, becomes swollen, the secretions are increased, first watery, and then mucopurulent, and there is sensitiveness to light. The lids are usually adherent in the morning from the secretion having matted the lashes. If no history of an epidemic of other definite exposure is obtainable, it will be pretty difficult to make a positive diagnosis at this time, because the lids show nothing positively characteristic, except that the palpebral conjunctiva is frequently swollen much more than would be expected from the short period of the disease, and the difficulty is increased because the swollen lids render thorough inspection difficult and painful. Given such a case you would probably institute classical treatment, directed toward allaying the irritation, disinfecting the discharge and reducing the swelling. Having done this you would expect your patient to be more comfortable if not entirely well at the end of from one to two weeks.

But right here the true nature of the disease would begin to show itself. As the acute inflammation begins to subside, the conjunctiva changes from its natural, smooth appearance to one of a varying degree of roughness, and is studded more or less completely with elevations strongly resembling the particles that make up a raspberry. This appearance is the result of the inflammation having extended to the lymph glands, producing an enlargement of these structures. Therefore, we have a structural change in the conjunctiva which is a true hypertrophy. As this involvement of the lymph glands continues the membrane loses its dull red color and gradually assumes the so-called grayish frog-spawn appearance, characteristic of the disease.

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* Read before the Franklin District Medical Society, July 17, 1906

Some writers enumerate several stages of the disease intermediary between the acute and the chronic, but as the object of this paper is to help you to make as clear a mental picture as possible, all the remaining description will be combined under the heading of the chronic form.

THE CHRONIC FORM.

Now the patient's troubles really begin. As the granulations increase in size the symptoms change. He complains of the eyes feeling as though sand was in them. They are hot and burning, and the tears, instead of being cool and moist, are scalding and there is an excessive flow. The pain in and about the eyes is almost unbearable in certain cases. There is very little relief with sleep, and upon waking the eyes are often red, swollen and painful, and the separation of the lids is difficult. Seeing a patient with these symptoms, a thorough examination of the eyes is imperative.

By everting the lower lids a small amount of roughness in the form of elevations, as mentioned above, or in folds in other cases, may be seen. But to get the typical picture, we must turn back the upper lid and expose the fornix or conjunctival cul-de-sac. Here is the real home of the trachomatous bodies. Time and again has one examined the lower lid to find little if any structural change, when the upper lid will be extensively involved. From this description it is not surprising that one condition leads to another. The constant moving of the roughened eyelid on the globe injures the epithelium covering the cornea; this permits the corroding action of the discharge to destroy the corneal structure and we get corneal ulcers of varying number and severity, which will surely leave their mark in the form of opacities.

If the cornea escapes ulceration, one has constantly to be on the lookout for the stubborn and often destructive condition called "pannus." In these cases a highly vascular membrane begins at the corneoscleral margin and generally spreads over the surface of the cornea giving the latter an inflamed and cloudy appearance, and reducing the vision in proportion as the pannus encroaches on the pupillary area. Along with corneal ulcer and pannus, iritis is frequently present, and must receive its appropriate treatment in order that the iris may not become attached to the anterior surface of the lens. If for any reason the patient does not receive prompt, vigorous and intelligent treatment at this time, and the vision has not been destroyed by one or more of the above-named complications, the disease progresses toward the stage of contraction, and the patient's last condition is literally worse than the first.

During the inflammatory stage we noted that the lids were enlarged because of the inflamed conjunctiva. Gradually the normal elements of this membrane are crowded out or absorbed and are replaced by true scar tissue, and as these cicatrices proceed to contract we have the lids beginning to warp, as it were, and as the drawing takes place on their under surface, the ciliary margins are inverted and then begins the irritating and destructive effects of the cilia upon the corneal surface. If this stage continues we have a true atrophy of all of the conjunctival elements, and the hitherto more or less free discharge, which usually accompanies the disease, begins to grow less in amount and more viscid in consistence. The lids move over the globe with more and more difficulty, and any clear cornea which had remained is converted into a dense opacity, and the poor victim is made miserable by an unbearable sensation of dryness.

Let me recapitulate these facts by citing the history of one of the several cases that I have had under my care.

This history tends to illustrate, also, (1) the method of inspecting immigrants, both in Europe and on this side. (2) The destructive character of the disease. (3) The results of failure to make a proper diagnosis and (4) the effect of treatment if pushed vigorously and persistently.

Case No. 1261. Polander. No previous ocular trouble; had been in this country before but returned to Poland in 1903. In April, 1905, he started for the United States, and reached the Russo-German line where he had his first ocular examination.

His description is interesting. The waiting emigrants were arranged in lines and made to pass a physician who examined eyes by everting the lids. My patient declares that the man in front of him was rejected because of sore eyes, and that his own and his companion's, who was next in line, were examined with the soiled fingers of the physician and that, the latter was not provided with any means of cleansing his hands.

Being passed, they then took train for Hamburg, where, owing to the delay in getting passage, they were placed in barracks for eleven days. On the ninth day his companion's eyes became red, inflamed and discharged a quantity of matter, and twenty-four hours later his own eyes began to trouble him in a similar way. Within twenty-four hours, the steamer being ready to sail, they were again submitted to an ocular examination. His companion could not pass and was sent to a hospital, while my patient was passed, notwithstanding that his eyes were acutely inflamed. Upon reaching Ellis Island in New York Harbor, he was again examined, and sent to a hospital, where he was under treatment for twenty-four hours.

Evidently the treatment was beneficial, for at the end of this period of time he was discharged and came immediately to a neighboring town. Two days after arrival here, the eyes began to burn, smart, feel sandy, with profuse lacrymation. He had difficulty in opening his eyes because of sensitiveness to light, much pain in and about the eyes, and the eyelids were adherent in the morning.

He consulted a physician who gave him eye drops and told him to have his eyes examined for glasses. The eye drops gave temporary relief, and, securing employment in a mill, he commenced work. His condition steadily grew worse, and at the end of two months he saw a so-called refractionist who sold him a pair of glasses and some eyewash. He used the latter about a month and then not getting any satisfaction he saw another physician who gave a powder to use in water and apply to the eyes. This also made him more comfortable for a time, but later the eyes became so painful and vision so indistinct that he could only do his work by the aid of a companion. By October, 1905, or six months after landing, the vision was so poor that pieces of coin or other small objects could not be distinguished at a few feet, and the eye discomfort was almost unbearable.

On Oct. 19, a shopmate brought him to my office. I found the palpebral and ocular conjunctiva of both eyes intensely inflamed. The right lower lid showed only a few trachomatous bodies, but the upper cul-de-sac was filled with these soft vascular elevations. The left eye was in a much worse condition, the lower lid showing the effects of thickening and beginning contractions in spots. It was extremely difficult to expose the left upper lid and fornix, but when I succeeded I found a solid mass of granulations. The cornea of this eye was very hazy, rendering a good view of the iris difficult. His vision was much below normal, that is with his right eye 20-200, which is the largest test type at twenty feet. His left vision was fingers at sixteen feet. The pain, loss of sleep and marked reduction of vision had put his mental condition in a pitiable state, and I recognized that the first step was to gain his confidence. I applied the alum pencil, gave him an astringent wash, and ordered him to return in three days. At the second visit I told him plainly what the disease was, and what it meant to him unless the proper treatment was instituted at once and continued faithfully. I urged the operation for expression as the first step and after a good deal of persuasion he consented. It was only after full relaxation under ether that the extent of the disease was disclosed. The trachomatous bodies were squeezed out between the blades of suitable forceps until the palpebral conjunctiva was rendered relatively smooth. With proper after-treatment he was able to leave the hospital in three days. Since then, there has been an incessant fight to reduce the conjunctival thickening and clear the left cornea. Weekly applications of copper sulphate crystals were made at the office, and he used an astringent wash three times daily at home. Gradually the symptoms lessened. Once in two weeks I examined his vision to detect any visual error, and six weeks after the operation I ordered a temporary pair of lenses for constant use.

Soon after this I lost sight of him for a while, but in six weeks he returned telling me that he had staid away because he had thought that the blue stone applications were worse than his disease, but as the latter grew worse without treatment he had changed his mind. On March 6, 1906, I substituted a copper citrate ointment for home use, and the right eye and vision had so far improved within a month that only occasional applications of copper sulphate were necessary. All this time the patient was working one week during the day and the alternate week at night, and in studying my history card I was struck with the fact that during the week of day employment his eyes would be comfortable, and a greater acuity of vision would be noted. But during the week of night employment, most of the gain would be lost and the eyes would be very uncomfortable and the patient discouraged. Upon careful inquiry I was unable to ascertain any rational reason for this as the kind of work was the same both by day and night, the only difference being a slightly less amount of sleep when the latter was taken during the day. However, by April first I was convinced that this factor must be considered and through a personal interview with his employer I was able to secure all day work for him, and he certainly made a more steady improvement thereafter.

On May 26, 1906, visual tests showed both eyes able to read 20-20, or normal vision, without any artificial aid. The palpebral conjunctiva of all the lids, excepting the left lower, were smooth, and I am still making periodical applications of copper sulphate to the left lower lid. He complains of very little ocular discomfort and is working every day. Owing to the marked tendency to relapse which is so characteristic of the disease, I shall try to keep him under observation for a couple of years.

This, in brief, is a none too highly colored picture of an ocular disease which, because of its contagious character, its chronic course and its visually fatal results, is a veritable scourge if permitted to go uncontrolled.

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THE WINTER CLIMATE OF TUCSON, PIMA COUNTY, ARIZONA.

BY ISAAC W. BREWER, M.D., FORT HUACHUCA, ARIZ.

THE town of Tucson is situated in the midst of an extensive mesa that is bounded on the north by the Santa Catalina and Tortolita mountains, on the east by the Santa Catalina and Rincon ranges, on the south by the Santa Rita mountains and on the west by the Tucson range. The Santa Cruz River runs through the town and furnishes water for drinking and irrigation. The surrounding mountains are clad in live oaks and pines and the Santa Rita and Santa Catalina ranges have been made forest reserves. The elevation of Tucson is 2,368 feet above sea level, while the highest peak in the vicinity, Mount Lemmon, has an altitude of 10,110 feet.

The name Tucson is said to come from the Indian word " Chookson " meaning black water.

The Spaniards established a *presidio* at Tucson to protect the mission of San Xavier del Bac during the latter part of the seventeenth century. It became a portion of the United States in 1853 with the rest of the Gadsden purchase.

Although retaining many quaint old buildings, remnants of the Spanish era, it is a modern town with water and sewer systems and electric lights, and an electric street railroad. In the Mexican quarter the streets are narrow, but in the newer portions of the town the streets are wide and well kept. Ample sidewalks are provided for most of the streets and during the past three years the sanitary condition of the town has improved very much.

The majority of the people live in cottages of six or more rooms with broad verandas and grounds. The more pretentious houses are built on the mission plan and are very picturesque. Adobe (sun dried) bricks are the most popular building material. Houses built of it are cool in summer and warm in winter.

Tucson has a population of about 14,000 and is the distributing point for a large area and has a number of excellent stores. The markets are supplied with the best fruits and vegetables that Southern California affords. Prices are high but not in excess of what is charged in other places in Arizona. Servants are hard to get and wages are high. Small cottages rent for from $35 up. There are twelve hotels in the town, the best and most modern is the Santa Rita, a large four-story mission building.

The school facilities are good. The University of Arizona which is located in the town, while not as well equipped as many of the older universities, offers a number of very good courses, especially in mining, engineering and assaying. Most of the religious denominations are represented by churches. There is a well-stocked library in the town.

During the past year many of the saloons and all of the gambling places have been closed up.

In the immediate vicinity of the town there is much of interest. Those who love flowers will enjoy watching the experiments that are being carried on at the Desert Botanical Laboratory, just outside of the town.

Climatically the Arizona stations may be divided into winter stations of which Phoenix is the best known, all-the-year-round stations of which Prescott is the best known and summer stations of which Flagstaff is the most important.

Tucson is distinctly a winter station. In the summer the weather is very hot and but few invalids are able to remain after the first part of April. In the following tables are presented the available meteorological data for the six months from October to March, inclusive. The temperature is expressed in degrees Fahrenheit, the humidity in percentage of saturation, precipitation in inches and tenths and the wind velocity in miles per hour. The records are for different periods but are the best that can be had.

Number of days during the five years from 1901 to 1905 the maximum and minimum temperatures were above and below certain critical points.

TABLE I.

TEMPERATURE.

	Mean	Highest Mean	Lowest Mean	Maximum	Minimum	Mean Maximum.	Mean Minimum	Mean Relative Humidity Per Cent	Average Precipitation	No. of Rainy Days	No. of Clear Days	No. of Partly Cloudy Days	No. of Cloudy Days	Prevailing Direction of Wind	Average Wind Velocity
October,	70	76	65	98	29	82	52	44	0.6	2	24	5	2	S	5.6
November,	59	65	54	90	21	70	43	42	0.7	1	24	5	1	S	5.2
December,	52	62	46	90	10	65	37	47	0.8	3	20	7	4	SE	4.9
January,	50	63	41	80	17	67	35	47	0.7	4	18	8	5	S	4.7
February,	54	70	45	82	11	67	42	28	0.8	4	16	8	4	S	5.9
March,	59	70	51	95	22	75	44	45	0.6	5	17	9	5	S	5.6

The old Mission of San Xavier del Bac with its Indian colony is well worth a visit. The mission was established by Father Kino about the middle of the seventeenth century. It was from this base that he made those remarkable missionary journeys through the arid plains of Southern Arizona. During the latter part of the eighteenth century Father Garces, the greatest of Arizona's explorers, made his headquarters at San Xavier.

For many years the mission was deserted and neglected, but it has been restored and reoccupied.

The roads leading from the town are fairly good and the mines in the surrounding mountains are very interesting.

There is a limited amount of game in the vicinity and the climate is such that camping is enjoyable at all seasons.

From a study of the accompanying tables it will be seen that Tucson is a station of moderate elevation, with a warm winter climate and clear, dry atmosphere.

During October the maximum reaches 90° or above on an average of ten days a year. During the other months the highest temperature occasionally reaches 90° but is between 40° and 74° 50% of the time. The nights are often cold, but the minimum is above 40° more than half of the time. The lowest temperature recorded was 10° in December, a minimum of 11° having been observed in February. The mean minimum temperature, which may be considered as the temperature shortly before sunrise, for the winter months is 38°.

TABLE II.

		Oct.	Nov.	Dec.	Jan.	Feb.	March.	Total.
Maximum.	90-100,	52	0	0	0	1	0	53
	75–89,	97	89	22	17	29	86	339
	40–74,	7	61	133	138	111	69	519
	Below 40,	0	0	0	0	0	0	0
Minimum.	Above 40,	151	94	51	36	17	88	467
	32–39,	4	52	55	58	62	50	281
	Below 32,	0	4	49	61	32	17	163

A study of Table II will give a fair idea of the temperature conditions that may be expected to obtain.

The relative humidity averages about 46% and varies but little from month to month.

During the six months under consideration 66% of the days are liable to be clear and but 6% cloudy. Rain falls on an average of nineteen days.

The prevailing direction of the wind is from the south and the velocity averages between five and six miles per hour. There are occasional dust storms that blow with considerable force but they are infrequent during the winter and fall.

In winter Tucson has a higher temperature and lower humidity than many of the noted resorts in this country and abroad. It is a little cooler and dryer than Cairo, Egypt, although the rainfall is greater.

Tucson is a desirable winter resort for persons in the early stages of tuberculosis, but not for advanced cases. Unfortunately, many delay coming to the southwest until the disease is well developed, and although some of them do well the greater majority do not improve. Such persons do better at lower stations or at home.

Tucson is a growing town in a growing country, and many persons who are not very sick have found employment in the mines in the neighboring mountains or in the business houses of the town. For persons with visible symptoms the outlook is not so good as there is a disinclination on the part of the business men of this region to employ those who may be a menace to their other employees. It is not advisable for those in moderate circumstances to come to the southwest trusting to obtain work.

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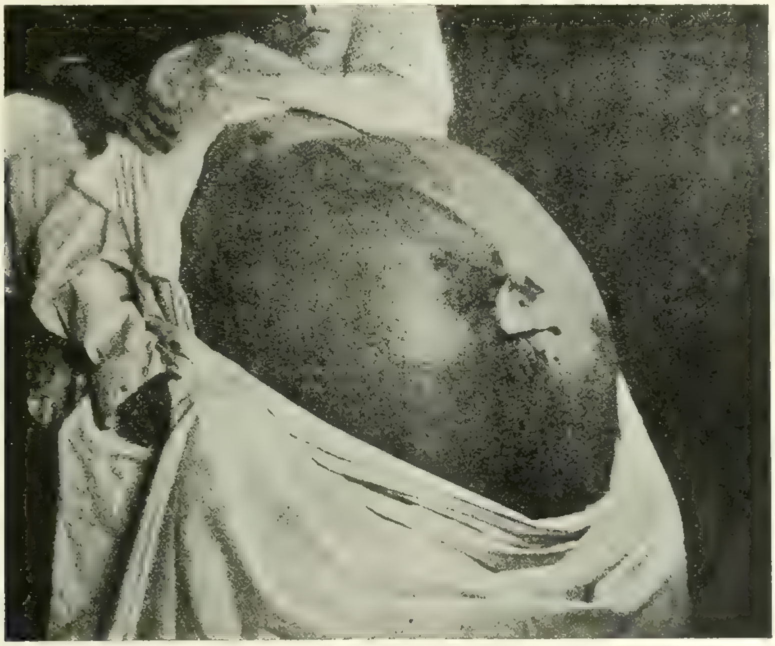
An international committee for the organization of tours of medical study has been founded. The president is Professor Kossmann of Berlin. —*British Med. Journal.*

REMOVAL OF AN ENORMOUS OVARIAN TUMOR.*

BY WALTER A. SMITH, M.D., SPRINGFIELD, MASS.

My only excuse for presenting this case is the large size of the tumor. The fact that it was a simple cyst, with a very small pedicle, serves to show still more emphatically the harm that can be and is still being done by the quacks that are allowed to practise in our community.

Patient, Mrs. A. H., aged forty-two. History of illness dates back two or three years, since which time she first noticed she was increasing in size. She had been under treatment by a quack who applied electricity, static and other varieties, for one to two years. Following this she consulted an osteopath who refused to treat her. Later for a few months she tried mental science, though I understand they advised a surgeon; following which she consulted a Christian Science healer who I understand assured her that all that was needed for a cure was faith in her nefarious cult.



I first saw her, May 15. She presented the appearance seen in the accompanying photograph. I at once made a diagnosis of ovarian cyst and she was removed to the Springfield hospital the next morning. The patient's measurements were, height 5 feet 4 inches; weight 375 pounds; waist measure 204 cm.; ensiform cartilage to pubes 94 cm. Examination of urine: no albumin or sugar; specific gravity 1015. Three P.M., patient's pulse 120. I introduced a trochar and drew off 14 gallons of fluid that weighed 126 pounds. Time of operation about two hours. Pulse rate at close of operation, 100. Present at the operation, Drs. C. P. Hooker, R. H. Scelye, J. B. Comins, I. R. Calkins, E. C. Collins and Dr. Eaton.

Patient passed a fairly comfortable night; morning pulse 100. At 8.30 May 17, the usual abdominal incision was made for the removal of the cyst.

I found the cyst wall adherent over the entire front of the abdomen, covering a space of about three square feet, extending to the diaphragm, and involving a portion of it. I think the adhesions were caused in great measure by the electric treatment above referred to. Underneath the liver was a mass the size of a child's head consisting of several small cysts. The pedicle was about one-half inch in diameter and I was only obliged to ligate one band of adhesion.

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* Read before The Massachusetts Medical Society, June 13, 1906

The adhesions seemed to furnish most of the blood supply, and bled very freely for a moment only after being separated. Large quantities of normal salt solution were injected into the tissues during the operation and also used for flushing the abdominal cavity.

As we removed the patient from the operating table, we placed the stretcher on the scales and she weighed 183 pounds; deducting this from 375 pounds, her weight the evening before, gives 192 pounds, the weight of the cyst and contents.

I wish to express my obligations to Drs. C. P. Hooker, J. B. Comins, I. R. Calkins, and Dr. Eaton, house surgeon, who rendered me all the assistance possible.

Patient died twenty-four hours later from general exhaustion and shock following the operation.

Reports of Societies.

AMERICAN PEDIATRIC SOCIETY.

Eighteenth Annual Meeting, Atlantic City, N. J., May 29 to June 1, 1906.

Abstract Report.

SUGGESTIONS AS TO THE CLASSIFICATION OF GASTRO-ENTERIC DISEASES ON AN ETIOLOGICAL BASIS.

Dr. Thomas Morgan Rotch, Boston, read this paper. The writer said that although the diseases of the gastro-intestinal tract formed perhaps the most important division of pediatrics, there was none in which there was so much confusion and diversity of opinion in the terminology employed; much of this difficulty was due to the fact that at no time had the classification been founded upon any definite basis. It would therefore seem advisable to classify the diseases of the gastro-intestinal tract upon an etiological basis and the following classification was suggested:

CLASSIFICATION OF THE DISEASES OF THE GASTRO-ENTERIC TRACT IN INFANCY AND CHILDHOOD ADOPTED BY THE DEPARTMENT OF PEDIATRICS OF HARVARD UNIVERSITY.

Gastric:
- *Developmental.*
  - Malpositions.
  - Malformations, Pyloric Stenosis.
- *Non-Infectious.*
  - Mechanical.
    - Contraction.
    - Dilatation.
  - Ulcers, Peptic.
  - New Growth.
  - Functional,
    - Nervous Vomiting.
    - Recurrent Vomiting.
    - Indigestion.
  - Traumatic.
    - Corrosive Gastritis.
- *Infectious.*
  - Gastritis.

Enteric:
- *Developmental.*
  - Malpositions.
  - Malformations.
- *Non-Infectious.*
  - Mechanical.
    - Dilatation of Colon.
    - Volvulus.
    - Intussusception.
    - Hernia.
    - Fissure.
    - Prolapse.
    - Hæmorrhoids.
  - New Growths.
  - Functional,
    - Nervous Diarrhea.
    - Indigestion
      - Duodenal,
      - Intestinal, Deficient Secretion
        Fermentation.
      - Incontinence.
      - Constipation.
- *Infectious,*
  - Infectious Diarrhea,
    - Dysentery.
    - Cholera Infantum.
    - From Other Organisms.
  - Proctitis.
  - Appendicitis.
  - Fistulæ.

Intestinal Worms.

Dr. L. Emmett Holt, Boston, thought the classification represented a decided advance, especially as enabling the student to grasp the relationships better.

Dr. B. K. Rachford, Cincinnati, inquired why the term "enteritis" had been dropped; he thought it might be used in the same way as appendicitis and proctitis.

Dr. A. Jacobi, New York, asked if under enteric diseases ulcers had been left out purposely, as that seemed to be the only place where the parallelism had not been kept up.

Dr. J. P. Crozer Griffith, Philadelphia, desired to know where the "nervous diarrheas" and "mechanical diarrheas" would come in; he thought the classification a great improvement.

Dr. Rowland G. Freeman, New York, thought there might be an advantage in dividing up the diarrheas more on an anatomical basis.

Dr. Thomas Morgan Rotch, Boston, in closing the discussion, said that as this was a primary classification, it had not been thought wise to consider the anatomical basis as that would come under a post-mortem classification. As to the peptic ulcer, that would come under a further subdivision in the teaching. A primary classification, he thought, should not attempt to include the whole clinical subject, but should give a number of principles to start upon.

SOME PHASES OF THE FEEDING PROBLEM.

Dr. L. Emmett Holt, New York, read this paper. The writer said that the essential things to be taught were the following: (1) The normal range of milk percentages; (2) approximate percentages of skimmed milk and top cream; (3) the simplest possible method of obtaining percentages; (4) need of translating at once into percentages any milk formula the patient might be using and a simple method of calculation. At every clinic he endeavored to present a case illustrating some phase of the feeding problem. He called particular attention to the tendency of giving a too high percentage of fat.

Dr. J. P. Crozer Griffith, Philadelphia, exhibited a glass graduate devised by Dr. Denning, of New York, for quickly estimating the percentages of proteids and fats.

Dr. Samuel S. Adams, Washington, entered a plea for more simplicity in teaching percentage feeding and referred to some of the difficulties experienced with students. The percentage of fat being given was frequently found too high.

Dr. W. P. Northrup, New York, referred to the tendency of the people to overfeed infants in order to have them gain rapidly. For his own use he never gave over 4% of fat.

Dr. E. E. Graham, Philadelphia, thought the impression should not be given that percentage feeding was a difficult problem; that it was only the way the method was taught that caused confusion. He presented a formula for the easy calculation of percentages.

Dr. Thomas S. Southworth, New York, thought that what was most lacking among the students and general practitioners was knowledge of indications for changing the formulæ. He thought 4% of fat was as high as should be given to any child and too high with many.

Dr. John Lovett Morse, Boston, thought the principles of percentage feeding were perfectly simple, and believed the trouble was simply that too many methods were taught. He thought one should never go beyond 4% fat.

Dr. L. E. La Fetra, New York, thought there were a great many failures at the present time, because of high percentages of fat used. He was inclined to put the limit rather lower than 4%.

Dr. Thomas Morgan Rotch, Boston, thought that home modification must always be more or less incorrect, and believed that in the future physicians would write their prescriptions to be filled at the milk laboratories. Anything over 4% fat was not suited to the great majority of infants.

Dr. A. C. Cotton, Chicago, said if one prescribed more than 4% fat he must have an idea that the fat of cow's milk was more easily digested than the fat of mother's milk. The methods of feeding should be made to meet the requirements of the individual case.

Dr. I. A. Abt, Chicago, thought the teaching on the subject should be dogmatic, and presented a formula which he had found very simple for home modification.

Dr. Thompson S. Westcott, Philadelphia, said the important thing in home modification was that the cream should be accurate; that the calculation of the percentage of fat in a given mixture when the percentages of the cream were known was a very simple thing.

Dr. A. H. Wentworth, Boston, thought it was not possible to know the percentage of cream unless it was tested and thought the Babcock test as simple as urinary analysis.

Dr. F. S. Churchill, Chicago, tried to impress upon his students three rules: that they must memorize the analysis of cow's milk, of 20% cream, and of whey; from this they could easily figure out the percentages.

Dr. Rowland G. Freeman, New York, deprecated the use of the dipper and top milk and thought that definite percentage of cream should be used.

Dr. J. E. Winters, New York, was an advocate of and had practised high percentage fat feeding and was satisfied with the results.

Dr. A. Jacobi, New York, thought 4% fats were too high and that the children would generally do well on 2% fat.

Dr. L. Emmett Holt, New York, in closing the discussion, said he was pleased with the substantial unanimity of opinion that 4% fat was the limit, and he did not think one should often touch the limit.

ACIDIFIED MILK IN INFANT FEEDING.

Dr. John Lovett Morse and Dr. Henry J. Bowditch, Boston, prepared this paper. The writers considered the methods of acidifying milk; the preparation of and composition of buttermilk; the methods of Pasteurizing buttermilk as an infant food; buttermilk as a food for infants; detailed a number of experiences with such feeding and drew the following conclusions; buttermilk mixtures and milk mixtures acidified with lactic acid bacteria were safe foods for infants, whether well or ill; that infants; can thrive and gain on them for considerable periods of time; that the use of a routine buttermilk mixture was not as rational as that of acidified milk mixtures, modified to suit the individual case; that the preparation of such acidified milk mixtures, while not difficult, was not very practicable for private work; they considered the mixtures worthy of trial in cases of intractable disturbance of digestion because some cases did much better on them than on other forms of modified milk.

Dr. E. E. Graham, Philadelphia, asked how long the children could be kept on the Pasteurized buttermilk and whether there was difficulty in transferring them back to the ordinary milk mixtures.

Dr. Thomas S. Southworth, New York, called attention to the chemical nature of the casein of buttermilk which was quite different from that of ordinary milk; the lactate of casein should be more easily digested.

Dr. I. A. Abt, Chicago, asked whether the carbohydrates physiologically made up for the deficiency of fat.

Dr. J. L. Morse, Boston, in closing, said that babies with acute diarrhea had been kept on the buttermilk for from three days to two weeks, and that they could be changed over to the milk mixtures without difficulty. In answer to Dr. Abt's question, he thought it possible that the carbohydrates would make up for the deficiency of fat to a certain extent.

Dr. A. Jacobi, New York, called attention to the fact that buttermilk had been the normal food of the peasant children in Holland since the eighteenth century.

OBSERVATIONS CONCERNING THE NATURE OF ATROPHY OF INTESTINAL ORIGIN.

Dr. D. L. Edsall, Philadelphia, read this paper. The writer said that the atrophy was not dependent directly upon intestinal disturbance, but there was a possibility of some toxic condition being set up which caused the atrophy. He referred to the recent studies as to the chemistry of proteids and the ferments, and said the proteid molecule had been shown to be made up of some substances which the Germans called "building stones" and the differences in the proteids depended upon the difference in quantity of these so-called "building stones." In the course of digestion there was extreme fragmentation of the molecule into these so-called "building stones" and then transformation of these fragments into the proteid of the individual occurred in the intestinal wall as they passed through. The wall of the intestine had this extremely important function to perform. It had been shown also that there existed in the wall of the intestine a ferment which acted upon these particles. The hypothesis upon which the writer had been working was that the difficulty seemed to be in the ferment formation in the intestinal wall; that it was incapable of transforming the substances into native proteid. He thought this might explain the atrophy. In four cases observed with this idea in view the ferment in the intestinal wall had been found absolutely absent in three; while in three cases, used as a control, it was actively present.

Dr. L. E. La Fetra, New York, asked if Dr. Edsall had done anything therapeutically in these cases.

Dr. A. H. Wentworth, Boston, asked if the absence of the ferment in any way affected the absorption of fats.

Dr. D. L. Edsall, Philadelphia, said there had been no clear relation between these observations and therapeutics; the use of ferments therapeutically in any condition had been unsatisfactory because they were so easily destroyed. He thought we might learn how to influence the small amount of ferment present and accelerate its action. In answer to Dr. Wentworth's question he said there was undoubtedly a disturbance of the absorption of fats.

MODIFIED WET NURSING.

Dr. Thompson S. Westcott, Philadelphia, read this paper. The essayist thought the necessity for such feeding might still exist in such cases as, (1) profound prostration and physical weakness of the baby, rendering active efforts at nursing impossible; (2) in the refusal of the infant to take the nipple; (3) when a wet nurse could not be found, but some woman residing at her own home was willing to supply by pumping a portion of her daily yield of milk. He believed the modified wet nurse as an extraordinary expedient was valuable, and there were occasions when there was an important need of human milk as a life saving food.

Dr. A. C. Cotton, Chicago, heartily agreed with the paper and emphasized the revivifying effects of a few drops of mother's milk in some cases. He also advocated the establishment of a bureau of registration for wet nurses.

Afternoon Session.

THE RELATIONSHIP OF WEIGHT AND LENGTH IN INFANCY.

Dr. Rowland G. Freeman, New York, read this paper.

WEIGHT IN THE FIRST TWO WEEKS OF LIFE.

Dr. J. P. Crozer Griffith, Philadelphia, read this paper.

These two papers consisted in the main in the demonstration of charts and statistics, and do not, therefore, admit of abstracting.

PRIMARY TUBERCULOUS INFECTION OF THE INTESTINE. (SPECIMEN.)

Dr. Irving M. Snow, Buffalo, presented this case,— a girl baby, born of healthy young parents, who had an older boy aged one year in good health. The boy died after an illness of six days of tuberculosis. The young baby was nursed by its mother and thrived for two months, when it developed a fever an explanation for which was sought in vain. Tuberculous symptoms developed and the child died of an intestinal hemorrhage. Autopsy showed miliary tuberculosis, and in the ileum a mass of enlarged lymphatic nodes and an area of ulceration of the mucosa three-fourths inch wide. The anatomical diagnosis was miliary tuberculosis of the lungs, spleen and skin, with tubercular ulcer of the ileum. The avenue of infection and the primary lesion were in the intestinal tract; the earliest lesion was the ulcer ot the intestinal mucosa, which was followed by invasion of the mesenteric lymph nodes.

Dr. B. K. Rachford, Cincinnati, had had a similar case under observation in which the mother was dying of tuberculosis during the birth of her child. A wet nurse was obtained immediately and the child removed from its surroundings and it did not develop the disease.

Dr. W. P. Northrup, New York, reported a case where the baby was allowed to nurse the breast of a tuberculous mother, and in six weeks autopsy showed cavities in both lungs.

Dr. Thomas Morgan Rotch, Boston, thought tuberculosis of the intestinal tract almost always secondary to infection of the mesenteric lymph nodes, and referred to the possibility of saving the patients by operative interference.

Dr. Samuel S. Adams, Washington, said that in his experience in tuberculosis of the intestines intestinal symptoms developed quite early, and there was generally first tuberculosis of the mesenteric lymph nodes.

Dr. T. S. Westcott, Philadelphia, reported a case in which it was believed that the child had been infected by the nurse who was waiting upon a tuberculosis patient in an adjoining room.

Dr. L. Emmett Holt, New York, said that his observation did not agree with that of Dr. Adams; that the intestinal symptoms depended entirely upon the amount of catarrhal inflammation that might be present; a single ulcer was not likely to produce any symptoms unless there was hemorrhage.

Dr. S. McC. Hamill, Philadelphia, said the trend of modern opinion was that primary infection occurred through the intestinal tract without producing lesions in the mucosa. He thought the great majority of cases were infected through the medium of the alimentary tract, tonsils and lymph nodes.

Dr. Alfred Hand, Philadelphia, called attention, in reporting a case of infection, to the fact that the lives of the child and nurse were so intimately associated during practically twenty-four hours of the day that they might both be subjected to the same outside dangers.

TUBERCULOUS CERVICAL ADENITIS IN A FOUR MONTHS' INFANT.

Dr. L. E. La Fetra, New York, read this paper. The writer said that simple acute adenitis is common in early infancy, but that tuberculous adenitis is very unusual in this country, and this case was reported because of its rarity. The family history threw no light upon the origin of the trouble. The child was born healthy, weighing seven pounds, six ounces; was artificially fed under careful supervision; child developed several attacks of cold in the head; tonsils, especially the right, showed a little exudate. After a third attack of this kind, there appeared a slight swelling of the right side of the neck in front of the sternocleido-mastoid muscle; three other nodes made their appearance. Operation was performed and examination of the nodes showed extensive tuberculosis with areas of degeneration and necrosis. It was surmised that the avenue of entrance of the bacilli was through the tonsil.

Dr. Henry Koplik, New York, said that he was inclined to believe that the tonsil was not such an infrequent source or infection. He had published the report of a case in a child nine months old.

Dr. A. C. Cotton, Chicago, reported a case occurring in a baby six months old, the infection being through the faucial tonsil.

Dr. J. H. Hess, Chicago, exhibited two photographs showing primary infection of the bronchial lymph nodes with secondary involvement of the lumbar vertebræ.

A CASE OF TUBERCULOUS PERICARDITIS, WITH FREQUENT ASPIRATION OF FLUID FROM THE PERICARDIAL SAC. DEATH FROM TUBERCULOUS MENINGITIS.

Dr. Alfred Hand, Philadelphia, reported this case. A boy, seven years old, was taken with moderate pain in abdomen and left chest which was followed by ascites and dyspnea. On admission, fourteen weeks later, aspiration in the midaxillary region gave a large amount of reddish fluid; a pericardial friction developed later, with bulging of the precordia and absence of breath sounds with flatness over the base of the left lung. Aspiration was repeated twice in the same location with a similar result. Death occurred from tuberculous meningitis, and autopsy showed great distention of the pericardium, which extended from the right border of the sternum nearly to the left posterior axillary line. Tubercle bacilli were found in the pericardium as well as in the fluid obtained by lumbar puncture.

Dr. J. P. Crozer Griffith, Philadelphia, had had in the hospital a similar case where the diagnosis was extremely difficult, as he thought it was in many cases in spite of the test for pericardial effusion.

Dr. I. A. Abt, Chicago, referred to the danger in pericardial aspirations, and reported two cases in which there had been an adherent pericardium.

Dr. Henry Koplik, New York, also spoke of the danger of pericardial puncture, especially where there might be saculations; he thought that many recovered without operation.

Dr. Thomas Morgan Rotch, Boston, thought that tapping the pericardium saved life in a considerable number of cases. As regards differential diagnosis between dilated heart and pericardial effusion, he said it would be found that a dilated heart does not extend very much to the right of the sternum when you get down as far as the fifth interspace. The angle of the dilated heart too, which it makes to the right of the sternum, was different from that of effusion, being inward with dilated heart and outward with effusion.

Dr. J. L. Morse, Boston, thought great care should be exercised in selecting the cases for aspiration, and that aspiration should not be undertaken until it was sure it was necessary. He would feel just as badly to have a case die with the pericardium full of fluid as from the result of the operation.

Dr. D. L. Edsall, Philadelphia, referred to a sign in pericardial effusion, elicited by throwing the patient forward on the chest causing a change in the compression signs.

Dr. Thomas Morgan Rotch, Boston, had also been interested in this sign in the back supposed to represent pericardial effusion, but did not believe it was diagnostic.

THE TEACHING OF SCIENTIFIC INFANT FEEDING.

Dr. Henry D. Chapin, New York, presented this paper. The writer said that the subject of artificial feeding could not progress as it should, or be on a scientific basis, until some principles were established beyond dispute. One of the first things to be settled was a uniform nomenclature so that terms might be used in a uniform and restricted manner. The introduction of the term caseinogen had increased the confusion, as already this term had two meanings in speaking of cow's milk. The combination of casein with ammonium, lithium, sodium and other bases was known. Curds were formed by a combination with lactic acid; they could be formed with sulphuric and hydrochloric acid. In medical literature caseinogen was supposed to be a normal proteid of cow's milk, but the term was also applied to other compounds. It would simpyify matters and help in making comparisons if in reporting feeding cases the form in which the casein was given was stated, as follows:

Simple dilute milk,— normal calcium casein.

Milk and lime-water,— basic calcium casein.

Milk and bicarbonate of soda,— basic calcium casein, antacid.

Buttermilk,— casein lactate.

It was important that some such classification be agreed upon as these different casein compounds have different digestive properties.

Dr. Thomas S. Southworth, New York was fully in accord with Dr. Chapin as to the necessity for differentiating these combinations in such a way that one might know exactly what a child was being fed.

Dr. Henry D. Chapin, New York, said that his object had been to call the attention of teachers to the fact that the knowledge of the chemistry of milk had advanced to a stage where definite chemical compounds are recognized, and we should agree upon terms (these were only tentative) which would make the subject plainer.

THE "23 CURE."

Dr. W. P. Northrup, New York, read this paper. This paper presented one idea, which was that in urging people to keep a sick or convalescent child in the open air many hours each day, one was always told that it was done, when, as a matter of fact, the child was out for only an hour or two. The writer described the excellent results he had had with the open air treatment of such patients, having them in the open air in all kinds of weather. The "23 cure" consisted in living twenty-three hours out of the twenty-four in the best obtainable, cold, fresh, flowing air. The treatment was especially excellent in the convalescence from acute illness, in cases of delicate infants and children not thriving. Under this treatment he said the patients sleep, they remain quiet as long as they are in the open air; they take more food and assimilate it better; they do not catch cold as easily as those kept in warm rooms.

Dr. E. E. Graham, Philadelphia, advocated Dr. Northrup's ideas and said the term "hospitalism" would be largely eliminated if this treatment were carried out. He had tried it for some time and the results had been most gratifying.

Dr. Alfred Hand, Jr., Philadelphia, had tested the value of the cure in two cases of typhoid fever and with good results.

Dr. L. E. La Fetra, New York, had concluded that whenever there was a case of a child not doing well the best thing to do was to put the child out in the open air. He had been impressed with the value of the treatment in comparing the results at the Nursery and Child's Hospital and the Randall Island Child's Hospital, in the latter of which the children were kept out in the open air nearly all day long with the most excellent results.

Dr. J. E. Winters, New York, thought there was danger of becoming too enthusiastic about the open air treatment, and feared that harm might be done in some cases, especially in cases of lobar pneumonia.

Thursday, May 31, Morning Session.

The President's Address.

THE ROLE THE TONSIL PLAYS IN THE ABSORPTION OF BACTERIA OR TOXINS.

Dr. A. Jacobi, New York. (This must be read in full to be appreciated.)

ANEMIA INFANTUM PSEUDOLEUKEMIA OF VON JAKSCH. CONTRIBUTION TO THE PATHOLOGY, HEMATOLOGY AND CLINICAL HISTORY OF THE AFFECTION.

Dr. Henry Koplik, New York, read this paper. The essayist had reviewed the whole literature of the subject and found a great amount of confusion. The first theory was that it was a primary blood disease, and a second, that it was really a secondary anemia depending upon disturbances of nutrition. He presented nine cases extending over a period of five years of observation, of which three were fatal. He concludes that there is nothing in these cases that suggests leukemia except it be the conditions in the liver and spleen; that the condition is rather one of severe disturbance of nutrition with secondary changes in the blood; a severe secondary anemia, with marked leucocytosis.

DR. J. L. MORSE, Boston, agreed with the writer, and did not think that the symptom complex which had received the name of von Jaksch's disease should be separated out. He thought the condition one of secondary anemia, and that there was no occasion for placing it in a class by itself.

DR. F. S. CHURCHILL, Chicago, agreed with the two previous speakers and considered that it had been looked upon as primary because the underlying cause was not known. He believed all the cases due to some vice of nutrition.

DR. S. McC. HAMILL, Philadelphia, was glad to hear the stand taken that this was a secondary anemia, as that coincided with his belief.

DR. ALFRED HAND, JR., Philadelphia, said that the more of these cases he saw the more convinced he was that they were secondary anemias.

DR. J. P. CROZER GRIFFITH, Philadelphia, thought we should either limit the cases to go under this heading, or else change or do away with the heading. He thought it should be divided, if at all, into infantile leukemia and secondary anemia.

SEPSIS IN THE NEWLY BORN WITH POST-MORTEM REPORTS.

DR. A. C. COTTON, Chicago, read this paper. The writer reported two cases, one occurring from traumatism in the mouth, the picture closely resembling gonorrhea of the mouth; the other a case of ulcerative endocarditis, the features being such as to suggest congenital tuberculosis.

DR. S. McC. HAMILL, Philadelphia, had reported twelve cases, and referred to a case which came under his observation recently,—a case of streptococcic infection occurring in a child two days old. He also called attention to the advantage of blood cultures in these cases.

DR. D. L. EDSALL, Philadelphia, emphasized the value of blood cultures in the infectious diseases of childhood, and thought there was no other method of diagnosis that gave results at all comparable to it.

DR. THOMAS MORGAN ROTCH, Boston, thought blood cultures were of great value in differentiating between different diseases and different forms of sepsis, and believed that in the future the method would be more and more used as a means of differentiation.

DR. HENRY KOPLIK, New York, deprecated the practice of nurses and midwives introducing the finger into the mouth of infants as it was a source of danger as to traumatism and subsequent streptococcic infection.

DR. L. EMMETT HOLT, New York, and DR. A. JACOBI, New York, also warned against the practice of introducing the finger or instrument into the mouth because of the ease with which the delicate mucous membrane could be damaged.

A CASE OF SEPTIC ENDOCARDITIS.

DR. B. K. RACHFORD, Cincinnati.

A CASE OF MALIGNANT ENDOCARDITIS FOLLOWING SUPPURATIVE OTITIS MEDIA.

DR. ALFRED HAND, JR., Philadelphia, read this paper. A girl, of eleven years, was admitted on the second day of the disease, in a profound stupor, with high fever, meningeal symptoms and petechial rash. Lumbar puncture excluded meningitis, and the presence of a heart murmur, which did not date from a previous attack of rheumatism, led to the diagnosis of septic endocarditis, which was confirmed at autopsy, the posterior, mitral leaflet being the seat of ulceration with fibrinous deposit; there was a septic, hemorrhagic infarct of the spleen. In the left petrous bone there was a purulent focus and the lateral sinus of that side was thrombosed. Cultures from the various organs gave a pure growth of the Staphylococcus pyogenes aureus.

DR. THOMAS MORGAN ROTCH, Boston, reminded the society that the trend of modern thought was that endocarditis is caused not only by a number of different organisms, many of which could be detected by blood culture, but that an organism had been detected by blood culture in cases of rheumatic fever which was probably etiologic of the disease. The endocarditis manifestation might come first, and not necessarily follow other symptoms of rheumatic fever.

DR. HENRY KOPLIK, New York, doubted if many would be ready to accept the sharp distinction drawn between rheumatic and septic endocarditis. The tendency to-day was rather to obliterate the term "rheumatic" with the idea that all endocarditis is but a degree removed from the septic forms.

DR. L. M. YALE, New York, reported a case following middle-ear suppuration.

DR. D. L. EDSALL, Philadelphia, referred to a case due to the Bacillus fetidus in which the primary trouble was a middle-ear suppuration, and the organism was recovered from the ear as well as from blood culture.

DR. J. L. MORSE, Boston believed that these infections originated in the middle ear a great deal oftener than had been generally supposed.

DR. F. S. CHURCHILL, Chicagy, had had four cases of pneumonia develop from pneumococcus suppuration in the middle ear.

INORGANIC LATE PULMONARY MURMURS IN INFANCY AND CHILDHOOD.

DR. S. McC. HAMILL, Philadelphia, read this paper, which called attention to the great frequency of these murmurs which were not due to any organic lesion.

DR. W. P. NORTHRUP, New York, said that it was the most common and crystallized information they had acquired at the Foundling Hospital in twenty-two years that these murmurs were frequently found without any organic lesion being shown at autopsy.

DR. HENRY D. CHAPIN, New York, had also been convinced for a long time of the frequency of these inorganic heart murmurs.

DR. JOHN RUHRAH, Baltimore, thought that stress should be laid upon this matter in teaching students, because on hearing these murmurs they were inclined to diagnose a heart lesion; they were also apt to confound it with pericarditis.

DR. I. A. ABT, Chicago, had found these murmurs, particularly in the severe anemias.

DR. J. L. MORSE, Boston, added his testimony in corroboration of the frequency of these murmurs; he had also frequently heard a systolic murmur in the neck in infancy when not heard over the heart.

DR. D. L. EDSALL, Philadelphia, said that the murmurs were very common in children out of health, but also very often in children in good health. It was very frequent in children with typhoid fever.

DR. ROWLAND G. FREEMAN, New York, thought one might say that every murmur heard during the first three years of life and not having the characteristics of congenital heart lesions, and not accompanied by septic condition, is in all probability a functional murmur.

DR. THOMAS MORGAN ROTCH, Boston, said there could be no doubt that these inorganic murmurs were much more common than had been supposed, but he called attention to the fact that during the first years of life, and possibly later, we meet with murmurs corresponding to this description at the base of the heart that are of congenital origin, and yet without any physical signs.

Dr. L. E. La Fetra, New York, had been impressed with the frequency of these murmurs during the fevers of childhood. He had seen very few hemic murmurs in childhood.

Dr. L. Emmett Holt, New York, said that it had not been his experience that the murmurs were infrequent in anemia; he thought it extremely common to find in the anemias a distinct murmur which disappeared under treatment for the anemia.

Dr. W. P. Northrup, New York, suggested the name "dynamic" for these murmurs.

Thursday Afternoon Session.

PRESENTATION OF SOME SPECIMENS OF FOREIGN BODIES IN THE BRONCHI AND INTESTINAL TRACT IN CHILDREN.

Dr. Thomas Morgan Rotch, Boston, presented this contribution.

In connection with an interesting case of a foreign body inhaled and detected in the lungs by the x-ray, Dr. Rotch spoke of similar cases that had come under his notice: (1) A flat whistle, 2 cm. in diameter, swallowed by a boy six or seven years old; no symptoms; whistle passed in eight days. (2) Girl, three years old, swallowed a tin whistle; no symptoms except that she was unable to swallow solid food; x-ray four days later showed whistle in the esophagus; removed with bristle probang. (3) Girl, four years old, without known cause had difficulty in breathing for two days; x-ray showed presence of hook in the larynx, which was easily extracted. (4) Girl, seven years old, inhaled half a peanut; followed by spasmodic cough and dyspnea; temperature went to 104° and she developed pneumonia; six days later coughed up the peanut; pneumonia quickly resolved and recovery followed. (5) Baby, about six months old, unfastened with its mouth and swallowed a gold safety pin unclasped; pin was passed in forty-eight hours. (6) Boy six months old passed a stick pin with a pearl head; no symptoms. (7) Girl, nine months old, after vomiting from time to time for two and a half months, vomited up a safety pin unclasped. It had not been known that the child had swallowed it. (8) Boy, eighteen months old, picked up and swallowed three safety pins; following day no symptoms, but one of the pins passed; following day second pin came away; the next day the baby was given an enema which brought away the third pin. (9) The case referred to at the beginning and which led to the mention of the others: girl of four years who entered the hospital with pulmonary symptoms and with the statement that she had swallowed the arm of a china doll; x-ray showed presence of foreign body and pneumonic process. Several x-rays showed the varying position of the china arm. In about a month she coughed up the foreign body, with quick recovery following.

Dr. W. P. Northrup, New York, reminded the society of the work being done with the bronchoscope in this connection, and had seen it used once recently successfully.

Dr. L. Emmett Holt, New York, referred to a case occurring in the child of a physician where it swallowed hair from the rug on which it played, and after the development of intestinal symptoms passed a large mass of hair after which it rapidly recovered. Also a case in which a child has swallowed ten safety pins which were passed one after the other. He had also seen a case this winter where a child had swallowed an open safety pin which was passed with safety. He deprecated the readiness with which surgeons were inclined to operate on these cases.

Dr. Henry Koplik, New York, referred to a case occurring recently in his wards where the child had aspirated some peanuts, developed pneumonia, empyema, and the pus at operation contained the residue of the peanuts.

Dr. E. E. Graham, Philadelphia, recited a case where the child had swallowed a tin whistle which was not passed until six weeks later.

Dr. P. J. Eaton, Pittsburg, had a child brought to him with history of having swallowed a pin, which he found embedded in the tonsil.

Dr. F. Huber, New York, cited a case of a boy of seven or eight who, while eating peanut candy, aspirated a peanut and developed pneumonia; the peanut was obtained a few weeks later. In another case with cough and fetid odor of sputum, x-ray showed the presence of a curved wire nail.

Dr. Samuel S. Adams, Washington, agreed with the other speakers that these foreign bodies were passed by the intestinal tract without harm so often that it was better to postpone operative procedures; he had seen the largest sized open safety pin passed through the intestinal tract of a baby.

Dr. S. McC. Hamill referred to a case occurring in the practice of a former student in which the child had swallowed a large iron staple, which was subsequently passed without harm to the child.

Dr. D. L. Edsall, Philadelphia, warned against the dangers of the careless use of the x-ray for diagnosis as it might have a profound effect upon the metabolism and was an agent capable of producing much harm.

Dr. L. Emmett Holt, New York, presented some photographs showing bromide eruptions.

(a) A CASE OF MEASLES SUPERIMPOSED ON SCARLATINA.

(b) KOPLIK'S SIGN IN A RECENT EPIDEMIC OF MEASLES.

Dr. P. J. Eaton, Pittsburg, presented these two subjects. In the first case there was absence of preliminary enanthem, double desquamation and absence of complications. The second referred to a recent epidemic of measles in which the writer has endeavored to ascertain how often Koplik's sign occurred; in thirty-two cases the sign was recognized from one to three days before the eruption on the skin; in eight cases no enanthem was seen at any time.

Dr. Henry Koplik, New York, said that in order to recognize the enanthem, care must be taken that the mouth is not washed, irrigated or sprayed; nothing should be done to the mouth that could possibly wash away the spots.

Dr. E. E. Graham, Philadelphia, reported a case of measles superimposed on scarlet fever.

Dr. Samuel S. Adams, Washington, had seen a case of measles superimposed on chicken-pox this spring, and also, for the first time, a case of measles superimposed on scarlet fever. It was the first time in thirty years' practice he had seen this combination.

Dr. George N. Acker, Washington, had seen two cases within the last two months of measles superimposed on scarlet fever.

ACUTE ENCEPHALITIS IN CHILDREN.

Dr. I. A. Abt, Chicago presented this subject. (1) A child taken suddenly ill with fever and unconsciousness, when she awoke from stupor and had generalized paralysis; partial recovery. (2) A case which showed crossed paralysis, located in the pons.

A CASE SIMULATING PEPTIC ULCER.

Dr. Samuel S. Adams, Washington, read this paper. The case was a colored child, eleven years old, who, two hours after a hearty breakfast, complained of severe pain in the stomach and soon vomited; vomited matter described as blood; vomited several times and had severe hiccough. One of the externes made a diagnosis of peptic ulcer from the symptoms. Was given rectal nutritive enemata and only cracked ice by the mouth. She vomited a brownish red liquid, somewhat frothy. Under treatment she improved. The doubt expressed by the writer as to the diagnosis was borne out by the subsequent history, as it was apparent from the examinations that the vomited blood did not come from the stomach. The conclusion of the writer was that the "vomited blood" was brought from the fauces by a voluntary effort resembling hiccough.

Thursday, May 31, Evening Session.

A smoker, with the President's compliments, was given, at which Dr. Rowland G. Freeman, New York, gave a lantern exhibition showing "The Influence of Milk Certification on Dairy Hygiene."

Friday, June 1, Morning Session.

The following officers were elected: President, Dr. B. K. Rachford, Cincinnati; vice-president, Dr. W. L. Carr, New York; second vice-president, Dr. D. L. Edsall, Philadelphia; secretary, Dr. Samuel S. Adams, Washington; treasurer, Dr. J. Park West, Bellaire, Ohio; recorder and editor, Dr. L. E. La Fetra, New York; member of council, Dr. George N. Acker, Washington.

Member of Executive Committee, Congress of American Physicians and Surgeons, Dr. A. Jacobi, New York; alternate, Dr. W. P. Northrup, New York; member of the committee of arrangements for the Congress, Dr. Samuel S. Adams, Washington.

Meeting to be held in Washington, at the time of the Congress, May, 1907.

Applications for membership: Dr. Frank S. Meara, New York; Dr. John Milton Dodson, Chicago; Dr. R. B. Gilbert, Louisville.

TYPHOID INFECTION CONVEYED BY A CONVALESCENT INFANT.

Dr. Thomas S. Southworth, New York, read this paper. He reported two house epidemics in two different cities, the connecting link being a child of a few months, convalescing from typhoid fever. During convalescence entered a house where there had been no typhoid, and in two weeks after arrival two other children were attacked with typhoid and later a third. He deprecated the habit of allowing convalescing patients to go around without any instructions as to care of discharges; this was especially applicable to children. He thought these reports threw some light upon what were often regarded as sporadic cases. The infection was conveyed by the bacteria still in the urine or stools.

Dr. D. L. Edsall, Philadelphia, had failed to find in a careful inquiry in a large number of cases that the majority of doctors gave their patients any instructions at all, even during the course of the disease, that bear upon contact infection. In having a careful examination made into the records in over 200 cases at the Episcopal Hospital he had found that contact infection was indicated in 17% of the cases; there was a suggestion of it in 25%.

A STUDY OF RELAPSES IN TYPHOID FEVER OF CHILDREN.

Dr. Henry Koplik and **Dr. Henry Heiman**, New York, prepared this paper. The writers said that relapses being as varied as the original attack the treatment was one of difficulty. Prolonged temperature elevation, enlargement of spleen and roseola were the symptoms to be expected. In 164 cases occurring in the last year there were 24 relapses. Average age nine years; 13 males and 11 females.

There were 15% of the total number that relapsed. The tendency to relapse was more pronounced in infant life than in later years. Mortality was exceedingly low in relapsing cases. As a rule temperatures continue high. A constant symptom is enlargement of the spleen. Roseola persistent in 75%. Complications were mild and infrequent.

Dr. Thomas Morgan Rotch, Boston, suggested that bacteriological examination of the blood was a reliable adjunct in the diagnosis of a relapse in typhoid fever as relapses were often difficult to determine. He said that as the Widal reaction at any rate lasts for a long time it is not of much value in determining a relapse; on the other hand the reappearance of the typhoid organism in the blood will definitely determine the piagnosis. Some very good work had been done in connection with blood cultures in relapses of typhoid fever, the organism having been found to reappear at this period.

Dr. I. A. Abt, Chicago, said that in many of the cases the spleen remained enlarged from the first appearance of the infection, and at the time of relapse became more enlarged. He thought that in some cases a single intestinal ulcer, perhaps somewhat indolent in character, was the cause of the relapse, and reported such a case which came to operation, and after closure of the ulcer recovery was rapid.

A CONSIDERATION OF SOME POSSIBLE ETIOLOGICAL FACTORS IN RECURRENT VOMITING.

Dr. John Howland and **Dr. A. N. Richards**, New York, presented this paper. They said in part that the etiological factors concerned in the recurrent vomiting of children had always been hidden in obscurity. Most writers had agreed that an underlying neurotic constitution was the cause. Examinations of the urine were made to ascertain the urinary conditions in these cases and the results were tabulated. Additional evidence of faulty oxidation was shown, especially by the increased secretion of sulphur. They thought the belief justified that interference with oxidation was the chief cause. Interference with oxidation was brought about in animals by the injection of various substances, such as phenol.

Dr. J. P. Crozer Griffith, Philadelphia, had not considered the condition a pure neurosis, but a toxic one, as in many of the cases no nervous influence had been discovered. Although good results had been obtained in some cases by the administration of the bicarbonate of soda there had been other cases not benefited at all.

Dr. D. L. Edsall, Philadelphia, said that acid intoxication was always a secondary condition due to some preceding cause. He agreed with Dr. Griffith that there had been many cases in which the treatment with large doses of bicarbonate of soda had been only partially successful. He thought the condition could also be explained by the theory of an autolytic process, and that it was impossible to say whether an individual had disturbed oxidation or not.

Dr. Rowland G. Freeman, New York, recited a case due to the influence of shock; a boy of five who was kept free from attacks for a year by the use of the alkalies until, this spring, having a fall from a bicycle, he came home with an attack lasting three or four days.

GONORRHEA IN INFANTS.

Dr. A. C. Cotton, Chicago, reported thirty-one cases of an average age of three and a half months.

A NOTE ON THE REDUCING POWER OF URINE FOLLOWING THE ADMINISTRATION OF UROTROPIN.

Dr. I. A. Abt, Chicago, reported a case of pyelitis in which urotropin was administered in increasing doses. The child did well and was taken South. The urotropin was continued because the urine did not entirely clear up. The child then appeared to develop severe glycosuria, the statement being that there was 2% sugar. There was a very definite reduction of the copper solution. Polariscope showed no rotation of light. The conclusion was, finally, that the reducing power was due to the urotropin. A number of children were then experimented with in the wards and the same results obtained. The writer concluded that the administration of urotropin will cause the urine to reduce copper solution. (2) That it does not ordinarily cause reduction of bismuth test solution and has no action on polarized light. (3) It may give rise to albuminuria. (4) Nephritis prevents the reaction by diminution in permeability of the kidneys.

CARBOLIC ACID POISONING BY RECTAL INJECTIONS.

Dr. George N. Acker, Washington, reported two cases of carbolic acid poisoning. (1) Child aged six years; mother gave rectal injection of carbolic acid, a teaspoonful in a pint of water. Almost immediately noticed the eyes closing; was semiconscious and would not answer. The eyes rolled about. Remained unconscious for nearly three hours and afterward complained of soreness in abdomen. The next day the urine was very dark and had odor of carbolic acid. The injection had been given for seat worms, the father having read in a family medical book that this was the proper treatment for that condition. (2) Child three years of age; family physician had ordered bowel irrigation with boracic acid, and mother by mistake had used carbolic acid, teaspoonful to the quart of water. Child became unconscious and remained in that condition with feeble pulse and respiration eight hours. Gradually made complete recovery. For seven days urine had dark color and odor of carbolic acid.

Dr. Samuel S. Adams, Washington, recited a case in which carbolic acid had been used in this way for tape worm. The mother had noticed segments and had gone to her physician. The physician being out she communicated her mission to the doctor's wife, who told her she knew what the doctor would order; to go home and give an injection containing a teaspoonful of carbolic acid to the quart. Carbolic acid poisoning followed the injection, which did not bring away the tapeworm, it being recovered later. Dr. Adams thought it probable that more of these cases occurred than one had an idea of, and parents should be warned of this danger.

Adjournment.

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AMERICAN MEDICAL ASSOCIATION.

Held in Boston, June 5, 6, 7, and 8, 1906.

Section on Surgery and Anatomy.

Dr. Robert F. Weir, New York, Chairman.

(Concluded from No. 11, p. 291.)

RESULTS OF PARTIAL OCCLUSION OF LARGE ARTERIES.

SURGERY OF PERIPHERAL NERVES.

Dr. John B. Murphy of Chicago in a paper on this subject pointed out that all nerves of the lower motor neuron were capable of regeneration for a long period after division. This included all the spinal and cranial motor nerves, particularly all those nerves having a neurilemma. Nerves of the upper motor neuron were not capable of regeneration to functional activity. Motor nerves should all be restored to accurate apposition immediately after division, and also after paralysis from division, contusion or compression. Union and functional transmission was the uniform result. The interposition of foreign bodies, such as connective tissue, retarded or prevented nerve union. When the ganglion or trophic cell body is destroyed, axons were not regenerated.

SURGICAL TREATMENT OF FACIAL PALSY AND BRACHIAL BIRTH PALSY.

Dr. Alfred S. Taylor of New York said he had employed the hypoglossal nerve in preference to the spinal accessory because of the more intimate anatomical and physiological relations of the muscle fields, the nuclei and the cortical centers of the facial and hypoglossal nerves. Also in each case operated on the method of lateral implantation of the facial on to the hypoglossal trunk was used in preference to the transverse section of both nerves followed by end-to-end suture. He believed the results would be better. The return of power was very considerable. There was no mortality. Voluntary motion returned in every case to a greater or less extent, but it was very essential to follow systematic after-treatment for many months in order to obtain the best results. In the brachial birth palsies early operation is indicated, that is, in from six to twelve months.

DISCUSSION.

Mr. Charles A. Ballance of London, England, had united the distal end of the hypoglossal nerve to the gustatory in several cases.

Dr. A. J. Ochsner of Chicago mentioned a case in which the ulnar nerve was divided following gun shot wounds and in which he bridged over a space of 7½ cm. by means of about twenty fine catgut strands. Within three years the patient had full control of the arm.

Dr. F. S. Lund of Boston had operated on three patients in accordance with the method described by Dr. Taylor, and in these the results were excellent.

ISCHEMIC PARALYSIS AND CONTRACTURE OF VOLKMANN.

Dr. Charles A. Powers of Denver had collected from the literature cases and narrated one personal case. The result was complete failure in ten cases. There was some improvement in 14 and a relatively good result in 27, implying more or less return of function. Of 22 cases treated by operation, a good result seems to have been secured in the majority. Of the 30 non-operative cases good results were secured only in a minority, and in several of these improvement was apparent only after years of observation. To save a muscle in its entirety, the author said that the cause must be removed within five hours, for in about seven hours rigidity supervened, which corresponded to a rigor mortis. Regeneration could not occur unless the circulation was promptly re-established. He believed that complete restoration of function was unknown.

TREATMENT OF FRACTURES OF THE PATELLA.

Dr. Joseph Ransohoff of Cincinnati said that fractures of the patella were often partial and subperiosteal and required no operative treatment, even if recognized. His paper embodied a study of 51 cases, in which 18 operations were performed. A master of aseptic surgery might operate in every case of fracture of the patella where separation of the fragments could easily be recognized. Where the diastasis indicated the lateral involvement of the lateral expansions of the quadriceps, the indications for operation were plain, unless valid contra-indications were present. The proper time for operation was the first week. The operation ordinarily indicated was the open operation with suture of the lateral tears and fixation of the fragments by some approved method. In old standing cases with very wide diastasis of the fragments, excision of the latter and suitable tendon plastic will probably give better results than bone suture. The knee joint should never be invaded by one who did occasional surgery. In the 18 cases operated on, the operation was done twice on the second day, once on the third, twice on the fourth and in the remaining cases before the fifteenth day. The only fatality occurred in a patient operated on, on the seventy-ninth day. The average stay in the hospital of the early operations was thirty days; of the average non-operated cases it was sixty days. Of the late cases it was eighty-four days. In two cases a considerable ankylosis remained.

DISEASES OF THE URACHUS.

In a paper with this title, **Dr. John F. Binnie** of Kansas City, Mo., reported a number of cases, and discussed the occurrence and treatment of the various affections found associated with a patent urachus.

Dr. Harvey Cushing of Baltimore, Md., read a paper entitled

SPONTANEOUS INTRACRANIAL HEMORRHAGE.

The author reported three cases of focal epilepsy occurring in patients having the so-called "port wine marks" in the ophthalmic distribution of the trigeminal nerve. Presumably a nevus of the dura existed in all these cases, and from this nevus one or more spontaneous hemorrhages, subdural, had taken place. Adhesions left after the absorption of the clot were doubtless the occasion of the motor discharges from the cortex. In one of the cases operation was attempted, but owing to extreme vascularity was abandoned. In a second case a craniotomy, with separation of the adhesions, was successfully carried out. In the third case operation was considered inadvisable.

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KIDNEY.

Dr. Arthur Dean Bevan of Chicago stated that in more than nine tenths of the cases the lesion, for a time, was limited to one kidney. The second kidney, in long-standing cases, might become involved through an ascending infection from the bladder. Primary infection, in nearly all cases, occurred through the circulation. It was highly essential to make a diagnosis as soon as possible before the second kidney was involved, and to institute the radical treatment of a nephrectomy at a time when the process was still limited to one kidney. Nephrotomy should not be done.

DISCUSSION.

Dr. Van Buren Knott of Sioux City, Ia., in discussing this paper, pointed out the use of the cystoscope in arriving at an early diagnosis. Nephrotomy as a palliative operation was condemned by him, and he said that nephrectomy should be done in every case in which the disease could be located positively and where it was confined to one kidney.

Dr. Howard A. Kelly of Baltimore pointed out that in man the disease might be primary in the organs of generation, ascending from the testes; while in women it was primary in the kidney. Attention was called to the frequency with which errors in diagnosis might be made, by laying too much stress on what were now considered positive symptoms. The wrong kidney might be incised or treated. This should be avoided by a careful study of the history and by carefully weighing all the findings. Nephrotomy might be necessary as a temporary means to relieve the patient, but nephrectomy should follow. However, in some instances it might be imperative to resort to nephrotomy, when the other kidney had been previously removed for tuberculosis. One patient so operated on was in perfect health four years after the operation.

Dr. Willy Meyer of New York said that frequent urination at night as well as during the day was an important symptom in these cases. Pain was a misleading symptom, in that it might be absent or might be referred to the opposite side. Ulceration of the ureteral orifice was also regarded by him as an important sign. Nephrectomy should be done as early as possible, and this should be followed by proper hygienic treatment.

Dr. Joseph Ransohoff of Cincinnati argued against nephrotomy as a final operation. He did not believe that the infection ever was an ascending one, because of the tubercle bacillus being nonmotile.

Dr. Lewis L. McArthur of Chicago thought it was better to drain the affected kidney for four or five weeks in cases of mixed infection, thus removing the septic product, before attempting more drastic measures, as he thought the final results by so doing would be better.

SURGICAL ASPECTS OF CONGENITAL CYSTIC KIDNEY.

Dr. F. B. Lund of Boston pointed out the importance of recognizing the true condition in these cases, because usually both kidneys were affected. Nephrotomy often resulted in causing death from uremia. The best treatment in a case of large cystic kidney causing symptoms was incision of the large cysts and packing with gauze, also fixation by suture, if the kidney was movable. This condition frequently ran its course undeterred until the secondary renal or arteriosclerotic changes resulted in death. Surgical interest resulted from the fact that the tumor, because of its size, frequently caused dragging and pain, and often immobility of the kidney. When cut down on, it might easily be mistaken for carcinoma or adenoma of the kidney.

TREATMENT OF BONE CAVITIES.

Dr. James E. Moore of Minneapolis discussed the treatment of such cavities by filling them with a material similar to the Mosetig bone plug. He found the following the most satisfactory in his experience: Spermaceti, 8 parts; olive oil, 2 parts; iodine, 1%. The spermaceti is melted at a low heat on a water bath, and the olive oil is added. The iodine is dissolved in the liquid, which is stirred until it congeals. Heat must not be used after the iodine is added. The mass is solid at the body temperature; it melts at 108° F., and is antiseptic without being irritating. The iodine was considered preferable to iodoform because it was soluble, inexpensive and more actively antiseptic than iodoform.

UTERINE FIBROIDS AND GALLSTONES.

Dr. Albert Vander Veer of Albany, N. Y., reported four cases of uterine fibroids, in which there was a history of biliary colic, and two in which the history was not clear. He advised that once the peritoneal cavity had been invaded the appendix as well as the gall bladder be inspected carefully and operative intervention resorted to if necessary.

TECHNIQUE OF OPERATIONS ON THE HEAD AND NECK.

Dr. George W. Crile of Cleveland, Ohio, said that in operations for malignant diseases the plan of the operation should be determined by the necessities of entire removal rather than a set technique. Principles not rules should govern the technique. The control of the blood pressure, both local and general, was of paramount importance. The principal sources of danger were muco-pulmonary infection, hemorrhage and shock. The blood supply of the brain should be conserved, as far as possible. Dr. Crile places the patient in a tightly-fitting sack, which causes an anemia of the upper part of the body. The application of a principle of dissection as thorough as that generally employed in operations for cancer of the breast, having due regard for all the lymphatics, both the superficial and deep groups, should give as good results in this region as in the former.

Dr. Charles L. Scudder of Boston read a paper on

DISLOCATION OF THE OUTER END OF THE CLAVICLE.

He reported two cases of complete dislocation of the clavicle, in which operation was necessary because of the irreducibility of the dislocation and the failure to maintain reduction once it was affected. About six weeks after the accident a suture of the acromio clavicular joint was made, using linen and catgut in one case, and aluminum bronze wire in the other. The suture was passed through the acromion process and outer side of the clavicle, and another might be passed through the clavicle or fibrous tissue of the joint and through the coraco-acromion ligament. The result was a permanent one.

CONGENITAL HYDROCEPHALUS.

Dr. J. Shelton Horsley of Richmond, Va., discussed this subject and reported a case of large hydrocephalus, congenital, with a large meningocele at the base of the skull. The meningocele was removed and the patient recovered, but the hydrocephalus continued to grow. Various operative procedures were adopted, but the only one that proved satisfactory was continuous drainage by the direct open method through a malleable silver tube. The patient finally died from enterocolitis.

CAPILLARITY IN INTESTINAL SUTURING.

Dr. F. Gregory Connell of Salida, Colo., described an experimental study aiming to show that the danger of peritoneal infection by capillary action of the suture material was greatly exaggerated. Capillarity in this connection was generally understood to mean the seepage or extending of a fluid along a suture beyond that portion which was in direct contact with the fluid. The extent of the capillary action depended on various modifying conditions, the most important of which was an inhibitory action of the mucous lining and contents of the intestinal canal.

Dr. Willy Meyer of New York followed with a paper entitled

OSTEOPLASTIC RESECTION OF THE COSTAL ARCH IN ORDER TO REACH THE VAULT OF THE DIAPHRAGM.

The reading of this paper brought the proceedings of this Section to a close.

The following were elected officers of this Section: Chairman, Dr. Arthur Dean Bevan, Chicago, Ill.; Vice-Chairman, Dr. J. G. Mumford, Boston, Mass.; Secretary, Dr. Harvey W. Cushing, Baltimore, Md.; Executive Committee, Drs. Charles A. Powers, Denver, Colo.; Maurice H. Richardson, Boston, and Robert F. Weir, New York.

Recent Literature.

An Essay on the General Principles of the Treatment of Spinal Curvatures. By Heather Bigg, F.R.C.S., Edin. London: J. & A. Churchill. 1905.

The purpose of this book is apparently to show that the method of gymnastic treatment of lateral curvature advocated by Bernard Roth, of London, is not to be relied upon, nor is the plaster of Paris jacket treatment demonstrated by Dr. Sayre in London in 1875 to be followed. The author prefers his own method, and gives pictures of several back braces of the steel spring variety, which have been developed from the teachings of the past of which he gives a brief history, and the experience of the Bigg family in the manufacture and application of spinal supports. The writer has given personal thought to the subject and gives photographs of normal individuals standing with a block under one foot and lying on one side, also of a curved cucumber which has been " persuaded " to grow straight in a glass tube.

The writer is not familiar, apparently, with the work of recent prominent investigators, such as Schultheis and Hoffa. The book is of value as illustrating the conclusion of a London " Mechanical Practitioner," as he terms it, whose views have been largely influenced by the experience of a well-known instrument furnishing establishment of long standing.

New Serum Therapy. By D. Montgomerie Paton, L.R.C.S. and L.R.C.P. Edin. New York: William Wood and Company. 1906.

The book contains much poorly recorded material and many conclusions based on false premises.

The Autotoxicoses: Their Theory, Pathology and Treatment. By Heinrich Stern, Ph.M., M.D., New York, Professor of Special Medical Pathology and Therapy in the College of Physicians and Surgeons, Boston; Director of the Institute for Medical Diagnosis and Research in the city of New York, Physician in Chief, Philanthropic Hospital in the city of New York; Pediatrist and Pathologist Misericordia Hospital and the Hartsdale Infirmary; Consulting Physician Metropolitan and Red Cross Hospitals; Chairman Section on Pharmacology, American Medical Association, etc., 12mo. 222 pp. Chicago: G. P. Engelhard & Co. 1906.

The book consists of two parts, the first dealing largely with various theoretical considerations concerning autotoxicoses, and the second, with their treatment. The author is familiar with the literature and conservative in his estimate of the value of observations made in this obscure field of research. The section on therapeutics contains many reasonable suggestions, some of which are original with the author.

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A COMPARISON OF THE RECENT MEETINGS OF THE AMERICAN AND BRITISH MEDICAL ASSOCIATIONS.

In the number in attendance, in the interest of the papers presented, and in the hospitable entertainment afforded, the recent meeting in Toronto of the British Medical Association was highly successful. To the American visitors there was the opportunity to hear a number of the men prominent in British medicine, and the Canadians themselves offered their best; these proved potent attractions and resulted in the attendance of many Americans. This fact, together with the great distance from the mother country, undoubtedly rendered the meeting less characteristically British. At the same time it was of interest to compare this with the 1906 meeting of the American Medical Association in Boston. Both were excellently conceived and executed. At the same time much difference as to method was evident. A striking example of this was the absence of legislative discussion at the British Medical Association. Another was the much shorter time devoted to the section programs, giving the effect of a very much more leisurely meeting.

All day section meetings, such as the American Medical Association holds, would seem almost too fatiguing in comparison, and an imitation of the British Medical Association with four forenoons of section meetings and afternoons devoted to general meetings and social affairs might well be tried next year. A judicious reduction of the number admitted to the program with a corresponding improvement in quality which this would necessitate would perhaps be welcomed by most of those in attendance.

The British custom of having several honorary vice-chairmen of a section is another point worthy of imitation. In a number of sections this afforded a rotation of presiding officers pleasing to the audience and also rendered the position of chairman less laborious and confining.

In promptness of execution and limitation of papers and discussions to their allotted time, the British chairmen might learn much from most of the presiding officers in American meetings. Furthermore, with us it is rather easier to time one's presence in a section in order to hear some particular paper, undoubtedly a defect in the British management.

A large part of the Toronto program was made up of symposia. In general whether such a program is preferable to one made up of isolated papers is an open question. The Toronto meeting represented the highest type of symposia in that the subjects chosen were those on which most active work is at present being done, and the speakers were for the most part the men actually doing the work. Consequently, the interest in the subjects was active, and the facts presented largely given first hand. Symposia on blood pressure, heart block, arteriosclerosis, metabolism, cancer investigations, etc., were most timely.

On the other hand there is the grave danger in the symposium of having the men as speakers who have worked rather than are working on the subject, — the *résumé* rather than the report of work, and with this a loss in vital interest. Often we hear speakers in such meetings, men of note, it is true, but speaking on subjects in which they have little active interest. Such symposia are less successful than those meetings in which subjects are not chosen for the speakers but in which each speaker selects the subject on which he has something new to say. Then these papers can be grouped on the program so as to bring together subjects of allied interest. Notwithstanding the great success of symposia at the Toronto meeting, it would seem unwise for these reasons to make the symposium the general policy of our medical meetings except when there is some subject very actively engaging a large number of workers in medicine who can best be brought together by this means.

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SIR HENRY ENFIELD ROSCOE.

To contemplate the life of a great man is always an inspiration; to read the autobiography of Roscoe [1] is especially so for the scientist and the physician.

[1] The Macmillan Company.

This great chemist played a most notable part in the scientific revolution which characterized, more than did any other movement, the nineteenth century. Nor, although a scientist by nature and by instinct, did he neglect the duty which the citizen owes the state. He gave much time to politics, a word not at all opprobrious in England, as it is so often with us; and was for more than a dozen years a useful member of Parliament.

Roscoe's own achievements in the science of chemistry are very modestly related in the book referred to, as are also the many honors which have been laid upon him. In his student days he went to Heidelberg where he came under Bunsen's beneficent influence. The latter's simple and engaging personality and wealth of character are appreciatively recorded. Bunsen was rather tall, and of a countenance expressive of rare intelligence, a very modest man, and unfortunately a bachelor. He never in his lectures gave due credit for his own achievements; " this has been discovered," or " it has turned out thus " was the way he always put it. To his students he was invariably a most devoted and kindly teacher. The Bunsen burner, which has been so widely used, was really the outcome of an imperfect gas lamp which Roscoe brought from London, gas having then been altogether a novelty in Heidelberg. Bunsen was not satisfied with the English apparatus, and having made many experiments on the relative size of the openings for gas and air, he finally produced the famous burner.

Bunsen often exhibited a quality of true genius, in that he was a very abstracted man. When it came to fashion and ceremonial he does not seem to have been an example to be set up for the emulation of aspiring youth. He was once invited to a state dinner, where he was to meet many notable folk. It was fitting that he should on this occasion wear his decorations. When the time came he dressed hurriedly, but finding that he would be very late he pinned one upon his breast, and thrust a number of others which had been put for him on his dressing table in order that they might also be affixed, into a pocket. At the dinner his one decoration was greatly admired; whereupon he emptied his pocket of the others, and declared that he " had still a lot more of these at home."

Helmholtz was to Roscoe a very dear friend, the most wonderful man he had ever known, " whose character was as charming and as simple and his heart as kind as his intellect was great." Those among us who met Helmholtz during his visit to this country some ten years ago, or who heard him lecture under the auspices of the College of Physicians and Surgeons in New York City, had the good fortune to realize, in some degree, at least, the accuracy of this gracious tribute. He was very temperate. He never smoked; and found that the smallest quantity of alcohol dispelled from his mind "all his good ideas."

Of Faraday, Joule, Tyndall, Huxley, Carpenter, Huggins, Clifford, Gladstone, Tennyson, — of such men as these Roscoe presents most human and sympathetic narratives. Truly, there were giants in those days; and at least one among these, we observe with gratitude, still remains among us.

MEDICAL NOTES.

A Serious Cattle Disease in Montana. — It is announced that Dr. Theobald Smith, Professor of Comparative Pathology in Harvard University, has gone to Montana to investigate a disease which is proving fatal to large numbers of cattle and certain other animals in the Anaconda region. It is suspected that the affection may be due to arsenic driven off into the air during the process of smelting.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Sept. 19, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 25, scarlatina 14, typhoid fever 65, measles 5, tuberculosis 35, smallpox 0.

The death-rate of the reported deaths for the week ending Sept. 19, 1906, was 18.45.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Sept. 15, 1906, was 219, against 188 the corresponding week of last year, showing an increase of 31 deaths and making the death-rate for the week 18.99. Of this number 117 were males and 102 were females; 210 were white and 9 colored; 145 were born in the United States, 70 in foreign countries and 4 unknown; 56 were of American parentage, 142 of foreign parentage and 21 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 26 cases and 3 deaths; scarlatina, 12 cases and 0 deaths; typhoid fever, 66 cases and 7 deaths; measles, 2 cases and 0 deaths; tuberculosis, 33 cases and 19 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 13, whooping cough 3, heart disease 18, bronchitis 3 and marasmus 14. There were 12 deaths from violent causes. The number of children who died under one year was 70; the number under five years 88. The number of persons who died over sixty years of age was 45. The deaths in public institutions were 77.

There were 1 case and 1 death reported from cerebrospinal meningitis reported during the week.

Diphtheria in Leominster, Mass. It is announced that diphtheria has appeared in Leominster, Mass., and that up to Sept. 12, thirty-one cases had been reported. The condition is being investigated by the Board of Health, and quarantine regulations have been established in the portion of the town affected, which is somewhat limited. Several cases were of a very severe type.

NEW YORK.

Reduction Plant on Barren Island. — The reduction plant on Barren Island, which was destroyed by fire a few months ago, has been rebuilt and placed in a state of efficiency considerably in advance of the date that was anticipated. The new plant is fully equipped to handle the entire output of the city's refuse, which, during the intervening period, it has been necessary to carry out to sea in scows and dump at a sufficient distance to prevent the floating material from defiling the beaches of the summer resorts on the New Jersey and Long Island coasts. Macdonough Craven, the engineer in charge of rebuilding the works, has reported to Dr. Woodbury, the head of the Street Cleaning Department, that the new plant is much larger than the one destroyed, the equipment consisting of 22 boilers, 100 digesters, 25 presses and 25 receiving tanks.

Brooklyn Water Supply. — In view of the comparative scarcity of water of late in Brooklyn, and of the rapidly increasing population in that borough, the Water Supply Department, without waiting for the development of the larger scheme designed to supply all parts of the Greater City of New York, has taken measures for an immediate increase in the Brooklyn water supply, derived from local sources. Plans and specifications have been prepared for the construction of a 72-inch aqueduct from Massapequa, on Long Island, at a cost of $3,000,000, and this, it is stated, will provide for the utilization of all water available on the south shore of Long Island, west of Suffolk County, which abounds in fresh water springs and ponds. In order to prevent any pollution which might result from a more complete draining of the watershed, the department is installing a system of filters and filtration galleries which, when completed, will thoroughly and effectively purify the entire water supply. These plans are based on the estimate that by 1915 the borough of Brooklyn will have a population of some 2,000,000 and that each person should have 110 gallons of water a day. Last year the daily average of consumption was over 90 gallons a head.

Filtration Plant. — It has been decided to construct a filtration plant for the city water supply at the Jerome Park reservoir, in the borough of the Bronx. The original plan of the Water Commission was to have this plant on Fishkill Creek, at a distance of sixty miles from New York, and the Board of Estimate and Apportionment had already made provision for an expenditure of $17,000,000 for its construction there. As it is estimated that the Jerome Park plant will cost not more than $12,000,000, this is a saving to the city of some $5,000,000. This will be probably the largest filtration plant in the world, and the design is to build it directly over the great reservoir which has already been completed at Jerome Park, completely covering it. There will thus be one reservoir just on top of another. The purification of the water will be accomplished by means of sand filters, and the capacity of the latter is expected to be 380,000,000 gallons daily. The consensus of expert opinion is to the effect that 99.5% of the bacteria in the water can be removed by the sand filtration, and the Water Department has decided to erect an experimental plant at Jerome Park, at an expenditure of $12,000, for the purpose of determining the best process or processes for the elimination of the remaining small percentage of bacteria. Another point upon which the department has decided is that, as soon as practicable, all the reservoirs on the water supply system shall be covered in, as it has been found that the effect of the sun on water in open reservoirs tends to increase the vegetable life in the water.

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Obituary.

LEROY MILTON YALE, M.D.

Dr. Leroy Milton Yale, of New York, died suddenly from cerebral apoplexy at his summer residence at Quissett, Mass., on Sept. 12, at the age of sixty-five years. He was born in what is now Vineyard Haven, Mass., and was graduated from Columbia College, New York, in 1862, and from Bellevue Hospital Medical College in 1866. He then served as interne at Charity Hospital (now the City Hospital) on Blackwell's Island, and after entering private practice was the assistant for a number of years of the late Dr. Lewis A. Sayre, the eminent orthopedic surgeon. Dr. Yale devoted considerable attention to medical literature, especially in the department of pediatrics. He was for some time the editor of the magazine called *Babyhood*, and he published two books on the care of children. He was of a genial disposition and artistic temperament and was well known in the literary and art circles of New York, where he achieved a deservedly high reputation for his etchings. He was an enthusiastic fisherman, and in order to enjoy his favorite sport he had for many years spent his vacations on the Massachusetts coast.

Miscellany.

DEDICATION OF THE NEW BUILDINGS OF THE HARVARD MEDICAL SCHOOL,

SEPT. 25, 26, 1906.

Tuesday, Sept. 25, at 2 p.m., at the School Buildings, Longwood Avenue, Boston, dedicatory exercises will be held.

The president and fellows, overseers, faculties and their officers will meet the delegates from other institutions and other specially invited guests, at 1.45 p.m. in the Administration Building, whence they will be escorted to the Terrace.

Other guests and the alumni of the Medical School will assemble on the lawn in front of the Administration Building.

Invocation, George Angier Gordon, D.D.; "The Enlarged Foundation," John Collins Warren, M.D., LL.D., F.R.C.S. (Hon.), Moseley Professor of Surgery; "The Buildings," Charles Allerton Coolidge, A.B., representing the architects; "Acceptance of the Buildings," the President of the University; "The Faculty of Medicine," the Dean; "The Laboratories," Thomas Dwight, M.D., LL.D., Parkman Professor of Anatomy; "The Clinics," Frederick Cheever Shattuck, M.D., Jackson Professor of Clinical Medicine; "Dedication of the Buildings," the President of the University; Benediction; Demonstration of the Buildings.

Wednesday, Sept. 26, at 11 a.m., at the University in Cambridge. Academic Session:

The president and fellows, overseers, faculties and their officers will meet the delegates of other institutions and other specially invited guests of the University at Massachusetts Hall at 10.30 a.m., and proceed to Sanders Theater, escorted by the alumni and undergraduates of the Medical School.

Other guests will assemble in Sanders Theater where seats will be reserved for holders of white tickets until 10.55 a.m. Holders of brown tickets will be admitted to the theater until it is filled.

Invocation, Edward Caldwell Moore, D.D., Parkman Professor of Theology, Preacher to the University; Alumni Chorus; Address, The President of the University; "Laudate Dominum" (specially composed by Converse), Alumni Chorus; Address, William Henry Welch, M.D., LL.D., Professor of Pathology in Johns Hopkins University; Harvard Hymn, Alumni Chorus; Presentation of the Roll of Delegates; Conferring of Degrees; Harvard Hymn, Paine; Benediction, The Dean of the Faculty of Divinity.

HARVARD MEDICAL ALUMNI ASSOCIATION.

The Harvard Medical Alumni Association makes the following announcement: "The exercises in connection with the dedication of the new buildings of the Harvard Medical School will be held on Tuesday and Wednesday, Sept. 25 and 26, 1906. The presence of distinguished delegates from American and foreign universities and scientific bodies and of over one thousand of the alumni will help to make the occasion the most notable in the history of medical education in America. This association will co-operate with the officers of the University and the Faculty of Medicine in attaining this object.

"On Tuesday, Sept. 25, at 2 p.m., the alumni will gather in the court of the new buildings to attend the dedicatory exercises. At their close the buildings will be open for inspection, and afternoon tea will be served on the terrace.

"Admission to these exercises will be by ticket obtained by acceptance of the official invitation.

"On Tuesday evening, at 8.30 p.m., the officers of the association will hold an informal reception to the alumni and guests at the Boston Medical Library, 8 The Fenway.

"On Wednesday morning, Sept. 26, the alumni will assemble at 10 o'clock in front of Grays Hall in the College Yard at Cambridge. They will be marshalled in academic procession in order of seniority of classes, and, preceded by the President and Fellows, the Board of Overseers, the governor and his staff, the foreign delegates and guests, will proceed to Sanders Theater, where will be held the formal literary exercises and the conferring of honorary degrees. Admission will be by ticket, obtained by acceptance of the official invitation. The whole gallery will be reserved for those alumni holding tickets who march in the procession.

"At the close of the exercises in Sanders Theater the alumni will gather in Harvard and Massachusetts halls for informal reunions, as follows:

"Graduates of the years before 1870, in lower Massachusetts.

"Graduates of the years 1870–79, inclusive, in Harvard 1.

"Graduates of the years 1880–89, inclusive, in Harvard 5.

"Graduates of the years 1890–99, inclusive, in Harvard 6.

"Graduates of the years 1900–06, inclusive, in upper Massachusetts.

"At 1.30 P.M. the procession will again be formed in front of Massachusetts Hall, in order of seniority, by the chief marshal of the alumni, Dr. Henry Jackson, '84, and will proceed to Memorial Hall to attend the Triennial Dinner of the association. Tickets for the dinner, at $2 each, may be obtained at the new Medical School on Tuesday afternoon, at the Medical Library on Tuesday evening, and at Grays Hall on Wednesday morning from nine o'clock until the procession forms. The President and Fellows of the University and their invited guests, including the Governor of the Commonwealth and delegates from other schools and scientific bodies, will be on this occasion the guests of the Harvard Medical Alumni Association. Ladies accompanying the invited guests will be escorted to the balcony of Memorial Hall to hear the after-dinner speeches.

"The privileges of the Harvard Union on Quincy Street have been courteously extended to the alumni on Wednesday, Sept. 26."

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RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPT. 8, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,427	619	Quincy	9	5
Chicago	515	188	Waltham	8	—
Philadelphia . . .	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	—	—
Baltimore	183	55	Brookline	6	1
Cleveland	—	—	North Adams . .	7	2
Buffalo	—	—	Chicopee	8	6
Pittsburg	—	—	Northampton . .	6	1
Cincinnati	—	—	Medford	7	1
Milwaukee	—	—	Beverly	5	1
Washington . . .	—	—	Hyde Park . . .	3	1
Providence . . .	80	29	Newburyport . .	—	—
Boston	228	96	Leominster . . .	6	1
Worcester	43	15	Melrose	3	0
Fall River	44	27	Woburn	3	1
Cambridge	20	9	Marlborough . .	7	4
Lowell	42	20	Westfield	—	—
Lynn	21	6	Peabody	—	—
New Bedford . .	33	19	Revere	5	4
Springfield	23	4	Clinton	4	1
Lawrence	30	14	Attleboro	5	2
Somerville	30	11	Adams	4	2
Holyoke	10	6	Gardner		—
Brockton	10	1	Milford	—	—
Malden	10	3	Weymouth . . .	5	2
Salem	15	6	Framingham . .	—	—
Chelsea	12	2	Watertown . . .	3	1
Haverhill	11	4	Plymouth	—	—
Newton	10	5	Southbridge . . .	1	—
Fitchburg	—	—	Wakefield	—	—
Taunton	18	5	Webster	—	—
Everett	5	3			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 5, 1906.

SAWTELLE, H. W., surgeon. Directed to report to chairman of board of medical officers, Washington, D. C., Sept. 4, for physical examination. Sept. 1, 1906.

STONER, G. W., surgeon. Directed to proceed to Washington, D. C., for special temporary duty, upon completion of which to rejoin station. Aug. 30, 1906.

MEAD, F. W., surgeon. Directed, upon expiration of leave of absence, to proceed to Savannah, Ga., and assume command of Service at that port. Sept. 1, 1906.

CARRINGTON, P. M., surgeon. Granted three days' leave of absence from Sept. 3, 1906, under provisions of paragraph 189 of the Service regulations.

WILLIAMS, L. L., surgeon. Leave of absence granted Surgeon Williams for one month and fifteen days from July 16, 1906, amended to read nineteen days from July 16, 1906, and five days from Aug. 19, 1906, in all twenty-four days. Aug. 29, 1906.

GUITERAS, G. M., surgeon. Directed to rejoin station at Cairo, Ill., Sept. 5, 1906.

HOUGH, J. SPENCER, acting assistant surgeon. Granted leave of absence for thirty days, to be taken on or about Oct. 15, 1906. Sept. 5, 1906.

THOMAS, A. M., pharmacist. Granted leave of absence for fifteen days from Sept. 9, 1906. Aug. 31, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 15, 1906.

J. M. **MOORE**, surgeon. Detached "Puritan" when out of Commission; to "Franklin," Navy Yard, Norfolk, Va.

W. H. **BELL**, surgeon. Detached "Nevada"; to home and wait orders.

G. P. **LUMSDEN**, surgeon. Detached "Minneapolis" when out of commission; to home and wait orders.

J. H. **PAYNE, JR.**, passed assistant surgeon. Detached "Arkansas"; to home and wait orders.

J. H. **IDEN**, passed assistant surgeon. Detached "Florida"; to home and wait orders.

A. J. **GEIGER**, passed assistant surgeon. To Naval Hospital, Mare Island, Cal.

W. G. **FARWELL**, assistant surgeon. Detached "Worden"; to "Connecticut."

A. E. **LEE**, assistant surgeon. Detached Naval Hospital, Mare Island, Cal.; to Naval Medical School, Washington, D. C.

J. B. **MEARS**, assistant surgeon. Detached "Minneapolis"; to "Worden."

H. T. **PERCY**, surgeon. Detached U. S. Naval Hospital, Yokohama, Japan; to home and wait orders.

J. M. **MINTER**, assistant surgeon. To Naval Hospital, Norfolk, Va.

E. P. **HUFF**, acting assistant surgeon. To Naval Hospital, New York.

J. M. **STEELE**, medical inspector. To Naval Recruiting Office, Cleveland, Ohio.

C. T. **HIBBETT**, medical inspector. To U. S. R. S. "Franklin."

A. R. **WENTWORTH**, surgeon. To U. S. S. "Louisiana."

W. F. **SCHALLER**, assistant surgeon, and R. I. **LONGABAUGH**, acting assistant surgeon. To U. S. Naval Medical School, Washington, D. C., Sept. 29, 1906.

C. B. **MUNGER**, assistant surgeon. To Naval Station, Guam, L. I.

BOARD CONVENED.

Board of officers was convened to meet at the Bureau, Washington, D. C., Sept. 4, 1906, to determine whether or not the physical condition of Surgeon H. W. Sawtelle is such as to entitle him to "waiting orders." Detail for the Board: Assistant Surgeon-General J. M. Eager, chairman; Assistant Surgeon-General J. W. Kerr; Surgeon L. L. Williams, recorder.

RECENT DEATHS.

DR. M. E. PAGE, a well-known specialist in diseases of the eye and ear, died in Oswego, N. Y., on Sept. 10, at the age of forty years. He was born in Broome County, N. Y., and was a graduate of the Bellevue Hospital Medical College.

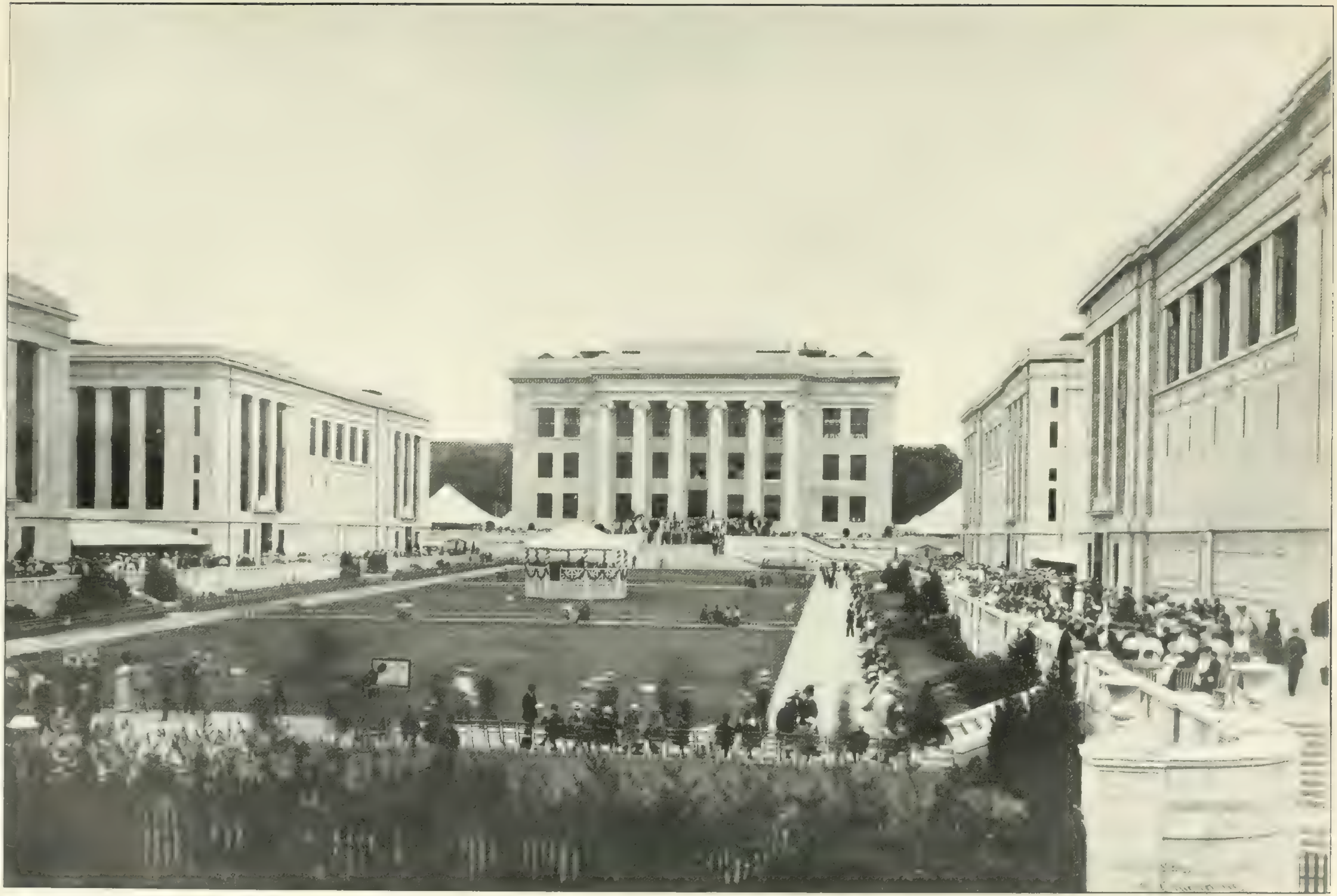
JAMES DWIGHT SEYMOUR, M.D., M.M.S.S., of Whately, died Sept. 11, 1906, aged fifty-six years.

BOOKS AND PAMPHLETS RECEIVED.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. Lond., D.P.H. Twelfth edition. London: H. K. Lewis. 1906.

L'Ame et le Système Nerveux, Hygiène et Pathologie. Par Auguste Forel. Paris: G. Steinheil. 1906.

Puerperal Fever Treated by Uterovaginal Drainage. By A. Ernest Gallant, M.D. Reprint.



Photographed by J. Chickering

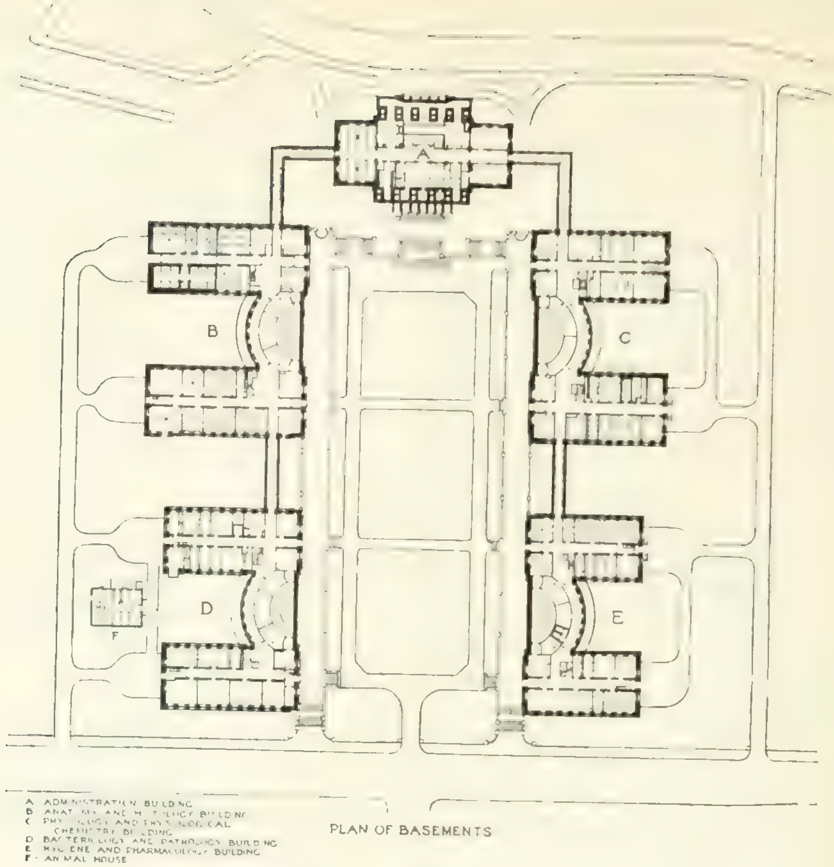
New Harvard Medical School Buildings, looking toward the Administration Building. Taken during the meeting of the American Medical Association.

(Photograph by E. Chickering.)

Main Staircase, Administration Building, New Harvard Medical School.

(Photograph by E. Chickering.)

Administration Building, New Harvard Medical School.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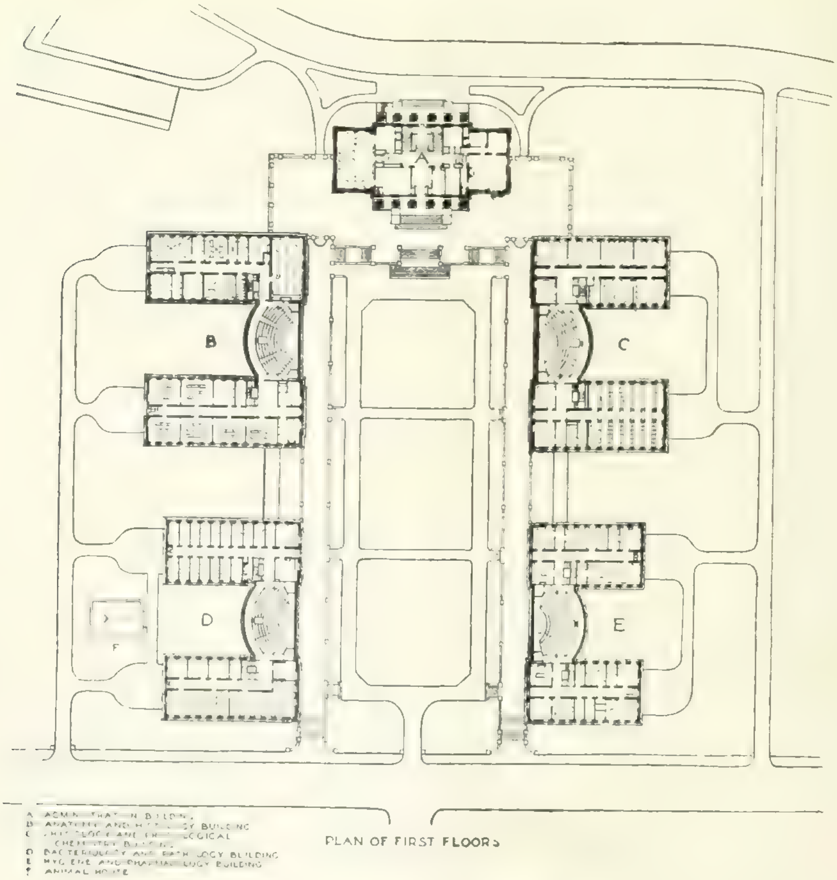
C PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY BUILDING
D BACTERIOLOGY AND PATHOLOGY BUILDING
E HYGIENE AND PHARMACOLOGY BUILDING
F ANIMAL HOUSE
PLAN OF BASEMENTS

NEW HARVARD MEDICAL SCHOOL.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D BACTERIOLOGY AND PATHOLOGY BUILDING
E HYGIENE AND PHARMACOLOGY BUILDING
F ANIMAL HOUSE
PLAN OF FIRST FLOORS

NEW HARVARD MEDICAL SCHOOL.

Addresses.*

THE NEW FOUNDATION OF THE MEDICAL SCHOOL.

BY J. COLLINS WARREN, M.D., LL.D., F.R.C.S. (HON.),
Moseley Professor of Surgery, Harvard University.

Mr. President, Delegates from Distinguished Centers of Learning, Benefactors, Ladies and Gentlemen: It is my duty and my privilege to announce to you on this occasion the completion of the great undertaking in which the Faculty of Medicine has been engaged during the past five years.

The first great step towards the foundation of a medical university has been accomplished; the laboratories for teaching and research are about to be opened on a scale far beyond what has been attempted before, and this great machine, with all its vast resources, is to be made an agent not only for the diffusion of learning, but for substantial aid and comfort to the suffering in the numerous hospitals by which it is soon to be surrounded.

But these noble buildings speak not only for a new era in medical teaching and medical research, but also for the interest which has been aroused in its behalf by men and women of public spirit.

How could a more appropriate and enduring monument to illustrious dead be raised than such as these!

This group of three buildings, with classic outline, a fitting memorial to a noble Junius, one whom we are proud to rememebr as a former citizen of Boston, is to-day dedicated to science by the princely liberality of a son,— *Filius patre dignus,*— whose benefactions are a household word wherever science and the fine arts are held in high esteem.

Near by stands a memorial to one of the pioneers who have opened a pathway for the commercial world to the treasures of our great West, a monument made possible by a lady bountiful, whose devotion to the memory of her husband has been illustrated in many a worthy cause.

But it should not be forgotten that one building is the gift of a citizen of Boston, and is to bear an honored Boston name, a name which stands for all that that implies; and we shall ever gratefully recall the innumerable gifts of the grand army of Bostonians who are, and always have been, ready with generous aid.

Last, but not least, we must remember to-day the good deed of one who studied with intelligent care this great educational problem and by generous endowment made it a living reality.

To you, benefactors all, I stand here to-day, in behalf of my colleagues, to say that from the bottom of our hearts we thank you, and that we appreciate what you have done for us and we would pray for good will and sympathy from you in our work, for does not scripture tell us, " That where thy treasure is there will thy heart be also."

THE FACULTY OF MEDICINE.

BY WILLIAM L. RICHARDSON, M.D.,
Dean of the Medical Faculty, Harvard University.

Mr. President, — Twenty-three years ago, having outgrown the old building on North Grove Street, the Medical Faculty moved to the new school at the corner of Boylston and Exeter streets. The dedication took place in December, 1883, and was of especial interest as it was also the one hundredth anniversary of the founding of the school.

This new building was so large and so well equipped in every way that it promised to be the permanent home of the school for many years to come. Within a very short time, however, more room was needed and, through the generosity of Dr. Henry F. Sears, the eastern wing was added and opened in December, 1890.

A few years only passed when the increasing demand for more practical and less didactic instruction soon demonstrated the fact that the laboratories were wholly inadequate to meet the requirements. The need of more room for the purposes of medical education became evident while the work of medical research was also seriously handicapped by the limitations of the laboratory facilities.

In the spring of 1900 the Faculty decided that another move must be made, and the first steps were taken the results of which we see to-day. Since then the members of the Faculty have watched with growing interest and pride the erection of these magnificent buildings. To-day they are to be dedicated and the school opens under most auspicious circumstances.

In these new buildings all that one could ask for has been provided, both for medical education and for scientific investigation and research. Here we have, as the President of the University stated on another occasion, " the means for a new start for medical education and research in our country."

The facilities are so ample and the equipment so complete that the Faculty has decided to make a new departure and to open all courses, including laboratory courses, to persons not candidates for the degree of medicine but to special students and to students in other departments of the university.

In taking possession of these new buildings the Faculty feels a great responsibility, and can only express the hope that the future history of the school will show that the Faculty has been faithful to the trust committed to it this day.

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THE LABORATORIES.

BY THOMAS DWIGHT, M.D., LL.D.,
Parkman Professor of Anatomy, Harvard University.

A PUBLIC meeting was held on Oct. 22, 1874, to raise funds for the proposed new building for the Harvard Medical School, that one which we entered in 1883 and which we now relinquish. The following sentence appeared in the BOSTON MEDICAL AND SURGICAL JOURNAL of the day of the meeting: "The country may be spared the reproach of seeing the richer graduates who desire a perfect medical education flock to foreign schools, while the poorer ones complain that by being kept at home, they must start in the race for success with the drawback of insufficient training." It is a great satisfaction to me, the writer of those words, to feel, thirty years and more later, that their implied promise has been kept. I am a firm believer in foreign travel and study as broadening the mind and admitting new trains of thought. It is not superfluous for our graduates, and it never will be; but we may say even now that, however desirable, it is no longer essential.

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* Addresses delivered at the dedication of the new Harvard Medical School Buildings, Boston, Sept. 25, 1906.

In that same period of struggle President Eliot used words which have never left my memory: "The first step towards obtaining an endowment is to deserve one." We are confident that our benefactors of a generation ago have never felt that we appealed to them under false pretenses. But as I look around me to-day on this wonderful scene, which thirty years ago would have been absolutely beyond imagination, I do not dare to speak of deserts. Rather, I think with awe on the obligations imposed upon us, on the account to render and the return to make. Yes, there is a return to make! The generous givers do not demand it for themselves; they claim it for the poor and the suffering, and for the world at large through the advancement of medical science.

One of the most striking phenomena of medical education during the past thirty years has been the gradual, unconscious, progressive, self-arrangement of the various studies into two grand groups, that of the laboratory and that of the clinical departments. The former are in the main preparatory to the latter, in which the patient is the central figure. Sometimes the former are spoken of as the scientific courses; but this is a usage against which I protest. It is a reflection on the clinical courses, for all study and instruction should be scientific. On the other hand the word "scientific" may suggest that the laboratory courses are not practical. This would be to say that they are taught under a misapprehension of the primary purpose of a medical school, which is, to train students to practise medicine on their fellow beings. But, and here is the heart of the matter, there is a sharp distinction between courses which are essential to a degree, and those which are not. Our work lies in two very different provinces. The first and principal one is to teach the student what is needful, in which our efforts are directed towards a definite end; the other to gain by our labors, and to help advanced students and specialists to gain by theirs, the secrets of nature. It is eminently proper that courses should be offered and investigations made by the latter, the practical advantages of which must be very remote. None the less we are sure that they will come in the end. Let us strive for the facts and the applications will take care of themselves. Which of the great discoverers in modern science, too numerous to mention, had or by any possibility could have had any adequate foreknowledge of what wonderful fruits posterity should reap from his labors, or in what profusion?

But this pronounced separation of the departments into these groups implies no opposition between them. On the contrary, I see everywhere the laboratory departments adding more and more copiously to the knowledge directly applicable to the welfare of our neighbors. If I mistake not, a new era has begun which already has given an earnest of what science can do for humanity, and which in the future will gain results beyond our hopes.

Were I speaking only for my own department, that of anatomy, I should go on to illustrate my views from the history of the past, and should unfold my hopes for the future; but this may not be. I have the honor to speak for all the laboratory departments. I cannot presume to do this adequately. Therefore I look for some central idea, some common interest, some link that binds us together. I find it in the museum which occupies the top of the noble building before which we stand. A great museum is the crown of a medical school, the chronicle of its progress. Whenever I visit London I am drawn as by a magnet to the Hunterian Museum where I admire the genius of the master and the talent of his followers. Let us hope that the Warren Museum may exercise a similar attraction on many. It is held in honor by all who have the progress of medical science at heart for its close association with the memory of its founder. It was through his influence while a Harvard professor that Massachusetts was the first English-speaking commonwealth to pass a law legalizing the study of anatomy. This must rank as one of the greatest services which Harvard has rendered to civilization.

A museum, let it be understood, is not a collection of specimens to be used as occasional implements for teaching. Such are, indeed, needed, but their place, with few exceptions, is not there. Neither is a museum a misellaneous assortment of curios. It is a collection demanding the greatest technical skill in its arrangement. It should show the normal structure of man, the minute as well as the palpable, the variations of the different systems, their resemblance to those of animals, their development, growth and decline, together with the changes incident to malformation and to disease. Where preparations are not available all this must be made clear by charts, models, microscopic sections and lantern slides. Moreover, there should be an exhibition of the apparatus for the study of living organism in action, and of the instruments for the treatment of disease. I use the word "instrument" in its broadest sense, so as to include not only those manufactured by man, but also living things from nature's laboratory. All must be so arranged as to illustrate the continuous progress of science. Such a museum includes the tribute not only of the laboratories but of the clinical departments as well. It is a striking reminder of how short is life and how long is art. We workers leave some faint trace and pass like shadows;

but the museum continues from generation to generation. Posterity shall read in it the record of the return that the Harvard Medical School has at least tried to make.

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THE CLINICS.

BY FREDERICK C. SHATTUCK, M.D.,
Jackson Professor of Clinical Medicine, Harvard University.

Mr. President, Ladies and Gentlemen: Medicine is an intensely practical calling. It appeals to us just in so far as it strives to prevent, cure and alleviate disease, the cause of so much misery, of so much impairment of efficiency, so destructive of the joy of living. Great progress has been made in the past quarter century when friends of medicine housed us, as we thought adequately, for a half century. You realize the fact of progress, which has been brought closely home to many of you. Your imagnination tells you that what has been won is a mere earnest of what is to be won. You see that there is no investment so safe, permanent and productive as that in medical education and research under the auspices of a great university. With far-seeing liberality you have, therefore, provided the ample, beautiful buildings which surround us. You have not forgotten that buildings are but a shell, that endowment is needed for their maintenance, and, above all, for the support of workers therein whose discoveries, unlike those of some other men of science, — chemists, electricians, physicists, — by an unwritten but immutable law may not be patented. Such money value as can be attached to a discovery in medicine, — and it may be incalculable, witness diphtheria antitoxin, — is reaped by humanity at large rather than by the discoverer, who is contented with rendering service and with such fame as may haply attend it, later or sooner.

We dedicate to-day these buildings to medical education and to medical research, two branches and aspects of medicine whose progress is greatly favored by association.

We rejoice in the present; we are full of hope and courage for the future. But, whether in joy or sorrow, it is always well to think straight, to face facts, to see just where we are.

Although it does not strictly belong to me so to do on this occasion I cannot forbear mentioning one fact in passing. Much more endowment, namely, must and will be provided to render this great plant properly, duly productive. But the paramount fact to which I beg to call your attention is that you see about you only a portion, I think I can safely say the subordinate portion, of the necessary means for furthering progressive medicine. You see provision for the foundations of medical study and for such research into the nature of disease as can be adequately carried on outside of, more or less apart from, a hospital, which is as truly a laboratory as any one of this group of buildings. All of the first year and a half of the student's time will be passed within these walls, as well as the afternoons of the second half of his second year, largely in studying healthy structure and function. During the mornings of the second half of the second year he begins to come into direct contact with the modifications of structure and function resulting from disease in the living man. Then it begins to be brought home to him how infinitely various may be the manifestations of one and the same disease in different individuals, how different diseases or diseased processes may be interwoven in the same individual. His third and fourth years are almost wholly devoted to clinical, bedside, study in hospital wards and out-patient departments. Thus, roughly speaking, the four years of undergraduate study are nearly equally divided between the laboratory and the hospital. Then should come one to two years' residence in a hospital, with gradually increasing responsibility, that great teacher, before a man is duly qualified to start practice. And practice, rightly considered, is a life-long course of post-graduate study. These buildings, then, serving for only half the needs of the under-graduate student, — their function as centers of research into the unknown being passed over though not forgotten, — what provision, you may ask, is made for the other half? Where are the hospitals? What relation do they bear to the medical school?

The two great and many of the lesser hospitals of the city are within easy access. One of the smaller hospitals has already moved into the immediate neighborhood; two more are coming, and we have good reason to hope that within a few years a new and largely endowed general hospital will be in operation at our very doors, in full co-operation with the University in the promotion of the highest aims of medicine. I do not know a medical school in the country which at present enjoys such clinical advantages as does the Harvard School. And these are to be largely supplemented in the near future. In England the hospital and the medical school, privately endowed, have grown old together in a happy marriage. To-day the strain of the necessity for laboratories and their proper support is being keenly felt in that country, to the liberality of whose rich men the higher education does not seem to appeal so strongly as it does with us. On the continent of Europe hospitals and medical schools are practically parts of the State and are supported by it. In this country the two grew up independent of one another for reasons which, however interesting they are, we cannot here consider. Their separation has been and is still a bar to progress in this country. There has been a feeling, not unnatural among laymen, that the prime, if not sole, function of a hospital is the cure of the sick within its very walls, and that this function is impaired or deranged by the introduction of teaching, by the use of the hospital as an educational center. It was feared that the individual might be sacrificed to the cause; that science is coldly indifferent to suffering. The keen American intelligence of those responsible for hospital management is rapidly recognizing the indisputable fact that the humanitarian and the educational duties of a hospital do not conflict, that they are indissolubly bound together if, indeed, they are not identical. The patients under the charge of a teacher of medicine, surrounded by sharp-eyed and critical young men, are sure to receive more careful study than patients not so guarded. Routine, that refuge of sloth, is minimized. Correct and early diagnosis, the basis of rational treatment, is more likely to be secured. That sick man is fortunate whose doctor, while caring for him, cares also for the advance of knowledge in medicine in the largest sense.

A hospital is a collection of the sick, and concentrates means and appliances for their care and cure which in private practice must be scattered, and thus difficult or impossible of full use, even by the rich.

The poor in hospital, especially if the hospital is also a center of medical education, often get better care than the rich in their " mansions."

I repeat that a hospital is truly a laboratory for the relief, cure and study of the experiments wrought by disease on human beings. In the laboratories about us healthy animals are the subject of experiments made under a due sense of responsibility for the purpose of ascertaining what disease is, in order the better to prevent and cure it. A wise benefactor has provided a foundation for Comparative Pathology; that is to say, for the study of the diseases of men and of the lower animals and of the mutual relations of the same. It is only within very recent times that we have begun to fully realize the importance of this study. In the hospital the surgeon of to-day is really a vivisector. Our knowledge of the interior of the body was formerly mainly derived from inspection after death. The most hidden parts are now laid bare to the eye and hand by the knife in the living man, resulting in priceless gain for physiology and pathology. The effort to succor the individual promotes the well being of mankind in general.

Whatever the source of a hopeful suggestion for relief or cure the final test and proof must lie in the hands of the clinician, who deals with human beings, allied to but not identical with other animals. The hospital clinician and teacher occupies a vantage position. He has the ready co-operation of a band of experts in the different branches of medicine and of every affiliated science. He has access to every useful appliance for diagnosis and treatment. The aggregation of the sick saves precious time in that it permits that multiplication of tests which is necessary by reason of the manifold sources of error which surround every problem of life. The common distinction between the scientific and the practical branches of medicine is an unfortunate one as it is not real. No one can tell how soon the fact, however isolated and unimportant it may seem, however derived, will, by connecting with other facts, become of prime practical value. The clinician in his daily work, alike inside and outside the hospital, may, nay, should, be as animated by the scientific spirit and should pursue scientific methods, *i. e.*, be as scientific as his brother of the laboratory in the ordinary sense of the word. The two are interdependent.

Let no one think that the scientific spirit leads to lack of sympathy with suffering and with the individual who suffers. But the head must govern the heart. There is no incompatibility between a cool head, hard if you like, and a soft heart.

I have already overstepped my allotted time by two minutes, a sin of commission for which I crave your pardon.

We are grateful for what we have. In addition we need, first, increased endowment for what you see about you, and, second, closer alliance with hospitals to bring our facilities for clinical teaching and research abreast of those for the basic branches of medicine. Provide the best guns, and have faith that the men to fitly serve them will appear if such are not already behind them.

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ACCEPTANCE OF THE BUILDINGS.

BY CHARLES W. ELIOT, LL.D.,
President of Harvard University.

ON behalf of the President and Fellows of Harvard College, I accept these buildings and the permanent funds accompanying them, as the largest single addition to the resources of the University which has ever been placed in the hands of the Corporation since it received its charter in 1650. The President and fellows well understand to whom they are indebted for this great gift. It is due in the first place to the constructive imagination and indomitable zeal of a few of the University's teachers of medicine; secondly, to the discerning and liberal acceptance by a few rich men and women of a veritable opportunity to do some lasting and pervasive good, with no admixture of evil, and with high promise of prompt beneficent results, a promise firmly based on the rapid progress of medical science within the past thirty years; thirdly, to the accumulated influence in favor of the medical profession which has been exerted in Boston and its vicinity for more than a hundred years by a series of much respected medical personages and strong medical families; and, lastly, to the habit of contributing to public objects from private means, clearly manifested by the first settlers on Massachusetts Bay, and maintained and amplified by the best part of the community in every generation since, as the people rose from poverty to comfort and through a diffused well-being to occasional private affluence and public magnificence. These superb buildings, therefore, are an expression of the intelligence and public spirit of many generations, and of the ardent hopes of the present generation for a new relief of man's estate. I accept them thankfully with the assurance in return that the Governing Boards and Faculties of the University will do everything in their power to increase that intelligence, to propagate that public spirit, and to fulfill those hopes.

DEDICATION OF THE BUILDINGS.

I devote these buildings and their successors in coming time to the teaching of the medical and surgical arts which combat disease and death, alleviate injuries, and defend and assure private and public health, and to the pursuit of the biological and medical sciences on which depends all progress in the medical and surgical arts and in preventive medicine. I solemnly dedicate them to the service of individual man and of human society, and invoke upon them the favor of men and the blessing of God.

Original Articles.

DISEASES OF THE BILE PASSAGES, INCLUDING THE LIVER, GALL-BLADDER AND PANCREAS.*

BY M. H. RICHARDSON, M.D., BOSTON.

In numerous manual and digital explorations of the right upper quadrant, in the course of abdominal operations undertaken for other purposes, I have found unsuspected lesions, chief among which have been diseases of the biliary tract dependent upon gallstones. In one or two cases I have found cancer of the pylorus, and in one or two serious disease of the liver itself. The number of pathological lesions detected in patients who have never complained of this region has been rather surprising. The operations in which these lesions were discovered were such as required incision large enough to admit the hand and arm. I therefore have been able to make careful digital examinations. It has so often been said that gallstones may exist for a long time without causing any symptoms that I have been interested in investigating the previous histories in the light of the digital demonstrations. Many interesting facts have thus been brought to light.

It has been frequently said that this, that, or the other subject has been exhausted, and that nothing new can be written upon it, — that, in fact, the matter of gallstones has been threshed out until nothing but a rehash of old facts can be expected. Such remarks, — to those of us who are actively engaged in gall bladder work, who see daily our shortcomings in everything pertaining to it, who find something new in every case, something which we feel we ought to bring to the attention of others, — far from discouraging discussions like these, cannot but stimulate them, if for no other reason, to prove to the over-confident that there is much more ignorance than knowledge in our daily routine contact with diseases of the liver, biliary tract and pancreas.

And yet those who think they know a little, at least, of these matters are surprised every day to realize how small that knowledge is. I could, I am sure, give details in the matter of gallstones alone which would show that this subject is far from being exhausted. Take, for example, the diagnosis of gallstones, — how often is a gallstone as cause for acute intestinal obstruction even suspected? In a recent case of this condition, operated upon by Dr. Clara Alexander, I had made, after careful study, a diagnosis of cancerous obstruction in the sigmoid flexure, and had advised exploration, under a prognosis so unfavorable that many a family would have rejected operative treatment. On the other hand, how often do we find under a diagnosis of gallstones, some other and inoperable lesion? Having found in the biliary passages an adequate cause for symptoms, who would go farther and examine remote regions of the abdomen, especially when such exploration necessitates an enlargement of the incision?

If these questions are not hard to answer, what will be said of certain others: What does a distended gall bladder without symptoms mean? Can one fail to detect gallstones in a normal gall bladder that he holds between his fingers? What is the real connection between gallstones and pancreatic lesions? In doubtful cases, would you incise the pancreas in the hope of finding a gallstone instead of a cancerous nodule? What is the nidus of gallstones? Do they ever form in the liver; and, if so, how far may the surgeon reasonably go in search for them? By what anatomical appearances can the surgeon recognize the difference between a chronic inflammation and a malignant infiltration of the gall bladder? In a given case, is the origin of extensive and disabling adhesions about the pylorus the result of gastric ulcer or chronic cholecystitis? Is there such a thing as suppression of bile; if so, what is its cause and what are its effects? Who knows, when his hand and eye are on the liver, whether it is enlarged from obstructive biliary engorgement owing to gallstones, from hypertrophic cirrhosis, from syphilis, or from cancer? Who, indeed, even if he is a trained pathologist, knows much about the anatomical appearances during life in any of the diseases included in this discussion?

What, in general, is the connection between symptoms and anatomical changes? What is the connection between marked anatomical changes and questionable histories? What causes pain in gallstones, and why is it so often absent, even when the pathological changes are most extensive?

What is the cause of persistent and uncontrollable capillary hemorrhage after operations upon the biliary tract? "Jaundice, of course," will be the reply. What, then, is the cause of such hemorrhage after operation for biliary fistula of long standing, when there is no bile either in the blood or in the intestines? In a word, what do we really know about the early symptoms of gallstones, and how confidently may we expect to recognize them? When we have recognized them, how great certainty of diagnosis shall be required before we explore, and how much trouble must they cause? To all these questions the really truthful answer must be an admission of ignorance more or less complete. Not wishing to weary you with these unsolved problems, the very mention of which would take all the time at my disposal, I would say to those, if any there are, who look upon these matters as settled, that I for one feel that they are far from a correct solution; and that it is only by renewed study, by many discussions, especially those based upon the disagreeable facts of failure, that we can hope to gain the knowledge which will give us that confidence in diagnosis, indications for treatment, and operative technique which we have learned to feel in that vastly more simple field — the right iliac fossa.

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* Read before The Massachusetts Medical Society, June 13, 1906.

The scope of this paper does not permit my going into details of cases upon which questions like these are based. Every suggestion of ignorance which I have mentioned is based upon actual experience in the operating-room. One or two cases, however, will suffice to illustrate the origin of my questions.

In a stout woman of forty-four (O. R. 36–27), after removal of a large fibroid, I found in the gall bladder two stones which together were about the size of a pullet's egg. The gall bladder was apparently little, if at all, changed, either to touch or sight. It was more or less contracted upon these stones. After the convalescence of this patient I inquired into the history with especial reference to them. The patient said: "I have never had any pain or other symptoms connected with the liver; but of course I have always been subject to these severe bilious attacks, and I have to be very careful what I eat!" It was perfectly clear that the "bilious attacks" were painful contractions of the gall bladder upon these stones. They still remain, however, and will be removed as soon as the patient makes up her mind to undergo the operation. The chief danger in this case while the stones remain is cholecystitis and perforation of the gall bladder.

In the case of a second patient, now convalescing from an exploration, the symptoms of gallstones have been of but few weeks' duration (vol. lxii, p. 67). This was astonishing to me, for the gall bladder was packed from the fundus to the common duct with stones of great size, and the patient was deeply jaundiced. She had, besides the gallstones, hopeless cancer of the liver and of the parts about the foramen of Winslow. She repeatedly said that she had never had any symptoms whatever of gallstones; but, on persistent questioning after the operation, she finally recalled that twenty years before she used to have "severe bilious attacks." The doctor said that the attacks were "part bilious and part dyspepsia." The patient was a woman of about sixty: the stones were of ancient origin, — they were black and hard, as old gallstones usually are. These stones undoubtedly gave rise to symptoms which were treated and described twenty years before as "partly bilious and partly dyspeptic."

I mention this case to show also one of the great dangers of gallstones of long standing; for it might be said that, in spite of her stones, the patient had had twenty years of life during which the only symptoms were those of dyspepsia and biliousness; whereas she might have suffered much more from the effects of perhaps a poorly performed or inadequate operation — or might even have lost her life. The irritation of the stones have, however, produced in her what they have produced in many others — hopeless malignant disease.

In a woman of fifty-seven (vol. lviii, p. 161), during an operation for a large ovarian cyst, I found the gall bladder so tense that it was impossible to produce any impression upon it by the fingers. It felt as if it were the seat of chronic cholecystitis, with walls thickened and contracted upon its contents, but with no stone perceptible in the cystic duct. Was this a diseased gall bladder? Is the normal gall bladder ever so firmly contracted as to permit no impression of the fingers? There might well have been, in the small cylindrical viscus, gallstones which I could not feel.

A young woman (vol. lxii, p. 57) with symptoms suggesting now gastric ulcer with strictured pylorus, now gallstones, was explored on May 7, 1906. The stomach, pylorus, duodenum, hepatic flexure of colon, gall bladder and right kidney were carefully examined. Nothing was found except a gall bladder, overdistended, with a small, soft stone in the beginning of the cystic duct. The gall bladder was drained for a fortnight. During her convalescence the epigastric symptoms continued, with vomiting. The patient went home from the hospital on June 2. Still the symptoms continued. The attending physician, a man of large experience and marked common sense, insisted on a gastric cause. He did not, however, see the operation. The patient now vomits continuously, is emaciated, constipated and suffering. Gastric ulcer, adhesions, twist of transverse colon, contracted pylorus and neurosis are given by different observers as causes for symptoms. Is there nothing to learn in a case like this when no two observers agree either as to diagnosis or treatment?[1]

Taking into account all the cases of biliary disease directly and indirectly dependent upon gallstones, including those in the pancreas and liver, pylorus and duodenum, including all cases in which a gall bladder origin has been diagnosticated, whether operated upon or not, and moreover, considering, besides my own cases, those of my colleagues at the Massachusetts General Hospital — a total of at least fifteen hundred cases — certain facts become conspicuous:

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[1] July 5. In this case Dr. Tilton, of Lexington, the attending physician, said that there must be still some mechanical lesion. I was confident that the symptoms were neurotic. The patient's condition became so alarming that I did not dare, on the strength of my own opinion, to persist in refusing operation. Dr. Stevens, of Cambridge, who at first had looked upon the case as neurotic, became at last convinced of its mechanical origin, and advised operation. Even then, in my confidence at having at the time of operation examined digitally everything within easy reach of the gall bladder incision (stomach, pylorus, duodenum and pancreas), I predicted a useless operation, only to find, in this misjudged woman, a *cancerous stricture* of the *jejunum* with almost complete obstruction! Then how clear became the connection between cause and effect; how characteristic of obstruction below the pylorus the symptoms,— spasm in the epigastrium, pain, vomiting of bile, complete obstipation, with absence of distention, and intestinal spasm! The wonder to me now is how I could possibly have failed to deduce the diagnosis of obstruction high up from such a history and physical examination. And yet how frequent is cancerous stricture of the jejunum? It is so extraordinarily rare that it would be ruled out of every eliminative diagnosis by its infrequency alone. Dr. Tilton was right; and the patient, after resection and suture owes her life to his persistency.

(*a*) The grave dangers of biliary diseases depend, directly and indirectly, upon gallstones.

(*b*) The causes which lead to symptoms in cholelithiasis are always mechanical.

(*c*) Medical treatment, once gallstones begin to offend, is necessarily palliative, for it tends to show that in advanced and serious mechanical lesions treatment may diminish somewhat the severity of the symptoms — for example, a course at Carlsbad.

(*d*) Medical treatment has no effect whatever upon the stones themselves, either as preventive or as absorbent. Surgical treatment, when applied while stones are confined to the gall bladder, before impactions of any kind have taken place, is so safe that there is practically no mortality.

(*e*) At the moment the stone becomes grasped in an irritated and contracted gall bladder, or becomes engaged in the cystic duct, symptoms more or less severe, dependent upon pathological changes more or less extensive, begin. When, as the result of prolonged mechanical irritations and of infections, changes are extensive, and especially when these changes are in and about the hepatic and common ducts and in the pancreas, operations are more difficult, the dissections are deeper and, in more hazardous relations, the patients are debilitated by long-continued symptoms. When patients are jaundiced, the dangers of operation are especially great and the mortality is large.

(*f*) The course of gallstones treated medically for symptoms of irritations and infections, more or less severe, is toward a fatal end, through great suffering. In a few instances symptoms cease or are quiescent. Time is yet insufficient to show the ultimate results in many of these cases. In some, however, we have seen infections, perforations, permanent and fatal jaundice, secondary lesions of stomach, duodenum, liver and pancreas. We have learned that nature's methods are clumsy, dangerous and inadequate.

That these propositions are sound, I have been convinced from over twenty years' experience. I do not at this time propose to prove their truth. Upon them, however, I base the conclusions of the present communication.

Assuming, however, the truth of the foregoing premises, the one conclusion, at least, is unavoidable,— that gallstones should be removed in their simple and uncomplicated stages. What, then, is the most important consideration in connection with the treatment of patients suffering, directly or indirectly, from the effects of gallstones? Is it not the earliest possible diagnosis, when gallstones are in their simple and uncomplicated stages?

The diagnosis of gallstones when they first begin to offend, whether by the excruciating pain of a successful passage or by the grumbling discomfort of an apparent dyspepsia, is the first and most important consideration of all questions connected with the right upper quadrant. Unfortunately, the time when gallstones begin to offend is very uncertain. The symptoms of offending, too, are most difficult of recognition and interpretation. Typical and unmistakable gallstone colic — terrible, transitory and recurrent — occurs in a small proportion of gallstone cases. Severe though the symptoms may be, their very severity and typical course point to slight pathological changes, and insure the safest of all gallstone operations. Persistent and obscure symptoms, trivial and perhaps hardly noticeable, dependent upon the slow dislodgment and delivery of a single large stone, mean, from the nature of things, extensive pathological changes, difficult of explanation and dangerous of repair. Indeed, if I were to make a rule, I should say that the typical and occasional biliary colics were more likely to indicate comparatively unchanged gall bladders than the obscure and persistent discomforts.

I am not advocating — at present, at least — that gallstones should always be removed when their presence is first suspected; for, while there are many considerations in favor of early explorations of the right upper quadrant, there are many against it. The chief objection to operations in this region is the difficulty of diagnosis: I do not mean the difficulty — not to say the impossibility — of telling exactly what the matter is with the patient, but the difficulty of deciding with reasonable certainty that there is present *any* surgical lesion whatsoever. Moreover, when explorations of the right upper quadrant are freely advised for perhaps trivial symptoms and for symptoms which are not characteristic of any special disease, the door is opened wide for those indiscriminate, ill-considered and unjustifiable surgical procedures, especially dangerous in the hands of the inexperienced, the amateur, the dilettant operator. Even when the diagnosis is plain, no one has a right to operate on the biliary tract unless he has had a large experience in general operating.

The diagnosis of diseases in the right upper quadrant is one of the most interesting and important chapters in internal medicine and in abdominal surgery. In many cases the diagnosis is so clear as to be beyond question; in others it is so obscure that it cannot be settled without exploration, although the symptoms may definitely point to one of three or four conditions. Indeed, in some cases great difficulty will be encountered, even with the hand in the abdomen and with the parts fully exposed to light. In some instances, after the most painstaking research, the surgeon will reach an apparently conclusive diagnosis, and even then will be unable to find any lesion whatsoever. Nevertheless, the accuracy of the diagnostician in diseases of the pylorus, the duodenum, the pancreas, the liver, the gall bladder and the right kidney is to me remarkable. The study of cases with lesions in this region is, to quote President Eliot, one of the greatest "joys of work." By numerous explorations in this area the surgeon is every day demonstrating the connection between cause and effect, between symptoms and pathological lesions. Whereas in the beginning no one could base a positive diagnosis of gallstones upon other than typical symptoms, to-day, many a physician and internist makes, with the greatest accuracy, a diagnosis based exclusively upon the history, and particularly that part of the history which deals with pain in some form.

From the pathological point of view we find at the operating table four classes of cases: Cases in which changes are owing to (1) stones contained in the gall bladder itself; (2) impactions in the cystic duct; (3) impactions in the common duct; and (4) impactions in the hepatic duct.

Without going into details of the numerous pathological changes upon which symptoms in these various localities depend, it is sufficient to say that there is a very wide variation in these changes themselves and in their subjective manifestations. In the great majority of cases we are able to tell not only that a gallstone is present, but where it is situated; we can predict with accuracy what changes, if any, we shall find; what the difficulties in dissection will be; what the prognosis is as to life and as to health.

Jaundice as a symptom demands special mention. Its weight, when present, is great. Too much importance must not be given to its absence, however. Many practitioners to-day believe that jaundice is essential to the diagnosis of gallstones. In the great majority of cases jaundice is anatomically impossible, because the stones, situated in the gall bladder from beginning to end, cannot impede the biliary stream. It is a remarkable fact of recent demonstration in many of my cases that gallstones, sometimes in large numbers, may be situated in the hepatic and common ducts directly in the biliary stream without causing jaundice. Jaundice, when gallstones are suspected, clinches the argument — makes the diagnosis positive; but its absence by no means eliminates the possibility of their presence.

The symptom usually relied upon for the diagnosis of gallstones is pain of some kind, with local signs in the region of the gall bladder. In those early cases in which the operative treatment is practically without mortality, almost the only symptom is pain. In the later stages also, when gallstones — through the mechanical changes which they cause — interfere with the biliary stream, pain is the first and most important symptom. Even when the changes are extensive, when the gall bladder can be felt, when there is jaundice, when there are signs of infection, pain is still the first and most important symptom. Pain is such an invariable and positive symptom of cholelithiasis that its absence, when all other symptoms point to gallstones, is conspicuous and suggestive. Indeed, the failure to get from the patient's history any account of pain makes the diagnosis of gallstones improbable, and always favors the diagnosis of malignant disease, either in the pancreas or elsewhere in or near the biliary tract.

In support of the proposition that gallstones should be removed as soon as they begin to offend, we must consider not only those trivial cases in which we can hardly fail to diagnosticate gallstones, but those in which the signs are obscure, — the cases in which the symptoms may be described by what the layman calls " biliousness " or " dyspepsia," some form of pain or discomfort.

The pain of gallstones which, either at operations for their removal or at other operations, are demonstrated to exist, receives a great variety of names. I have interested myself in placing in parallel columns the patients' exact words in describing their discomforts, and the pathological lesions found. One sees a wide variety of descriptive symptoms — from what is roughly described as " biliousness " and " dyspepsia " to such expressions as " grinding pain," " deep soreness," " discomfort," " gastric distress," neuralgia and neuritis. In a recent case the only symptom of gallstones that I was able to make out was a persistent " strenuous distress." In this case the patient for many years had refused operation. As a last resort the gallstones were removed, but the operation proved fatal.

It is much easier to ask questions than to answer them; it is much easier to ask what the symptoms of the earliest stages of gallstones are than to tell what they are. The two most important considerations in the diagnosis can be strongly emphasized. The first and most important is the pain itself; the second is the irregular recurrence of the pain, in a similar or in a gradually changing form. One attack of discomfort in the right hypochondrium may suggest gallstones; a second similar attack suggests them more strongly; a third makes the diagnosis probable; transitory tenderness in the gall bladder makes it almost certain; a transitory jaundice, though seldom present, establishes the diagnosis. The discomforts which gallstones in the gall bladder in their earliest stages, without mechanical impaction, cause, in the given case, are always the same. These discomforts are repeated at irregular intervals. They often seem to depend upon what is eaten, so that patients refer them to errors of diet. And yet the recurrence of symptoms at times when they cannot reasonably be said to depend upon anything eaten favors a gallstone rather than a gastric origin. Irregularities as to frequency, with irregularities as to time of day, add to pain and its variations the strongest argument in favor of gallstones. Periodicity as to time and regularity as to occurrence favor a gastric origin for pain. The relief of discomfort or of pain by food favors also a gastric cause. In simple gallstones no relief is possible except that which overcomes spasm.

Acute and chronic septic processes in the biliary tract have a symptomatology of their own dependent upon infections and their results. These are almost invariably preceded, however, by the symptoms of their causative factor, gallstones.

Whether gallstones suspended in the bile of a practically normal gall bladder ever cause symptoms, I am unable to say. I have found a single stone in a gall bladder not tense or distended, suspended in this fluid; and yet I have no doubt that this stone had at times become temporarily engaged at the cystic duct, by the contraction of the lower part of the gall bladder upon it. In such cases, when the stone becomes engaged, there may be a painful spasm, or there may be a discomfort, which is referred to by the patient as a dyspepsia or a gastralgia, or a biliousness, or an error in diet. Nevertheless, one cannot assume that gallstones in a comparatively unchanged gall bladder always cause symptoms, when occasionally, after operations which have demonstrated pathological changes, patients under the closest questioning have not been willing to admit the slightest pain or discomfort. I have seen gall bladders packed full of stones, without any bile, in cases in which the symptoms were trivial; and, as I have said, I have seen two cases in which there were gallstones large enough to obstruct the small intestine, and yet in which there were no symptoms.

Briefly, the diagnosis of gallstones in the early stages depends upon some form of pain recurring at irregular intervals. The more violent the pain, the greater the probability of gallstones, — the very violence of the symptoms indicating a sudden impaction. The consulting surgeon, unfortunately, does not see the patient during these acute attacks. I cannot but think that in every instance the very first symptoms are due to contraction of the gall bladder upon the stones, — from which contraction, unsuccessful in expelling the stone, a spasm of the muscular fibers of the viscus must result. This spasm must either be perceptible at the time, or it must result in tenderness. A gall bladder may be excessively distended and yet be so situated as to be imperceptible; nevertheless, tenderness to deep palpation will usually be expressed. It may, however, be tightly distended and yet cause no symptoms subjective or objective.

With the attention of the practitioner drawn to the possibility of a gallstone origin in all obscure symptoms of the epigastrium and right upper quadrant, there will result, I think, a recognition of the early efforts of the gall bladder to rid itself of these foreign bodies. In addition to the subjective symptoms based upon pain or its modifications, some physical sign, either tenderness or distention, will suggest the lesion.

Before going further into the symptomatology, let us pause a moment and consider what a positive diagnosis of gallstones in the early stages means to the patient, as contrasted with the diagnosis made in the advanced stages. In a total of perhaps four or five hundred cases of gallstones which I have myself operated upon, there have been no deaths in those early stages which I am now considering, when the stones are confined to a comparatively healthy gall bladder. When through impaction of the cystic duct changes have taken place in the gall bladder, changes owing to infection and obstruction, and especially when there has been gangrene of the gall bladder and local peritonitis, — there has been a small mortality. The dangers of cholecystectomy, as compared with cholecystostomy, in clean cases, are small, but there is, nevertheless, in aseptic cholecystectomies, as compared with aseptic cholecystostomies, a mortality which cannot be disregarded. The pathological conditions which indicate total extirpation of the gall bladder increase the difficulties of dissection, prolong the operation, and, in the aggregate, therefore, necessarily augment the danger and the mortality. Acute infections of the gall bladder, with or without gangrene and perforation, though in my experience less fatal than similar infections of the appendix, have yet a considerable mortality. These cases which in their progress may sometimes be called fulminating, without prompt relief are, through gangrene and perforation, necessarily fatal. As in simple gallstone irritations, the success of operative treatment is in direct ratio with seasonableness of intervention. When the stone has become impacted in the hepatic or in the common duct, we then have the far-reaching changes of obstructive jaundice, with increased difficulties of dissection, with failure in the patient's strength and in his powers of resistance. Here we have the great mortality of gall-bladder surgery; by far the larger number of deaths in the surgery of the biliary tract are among these cases. In those malignant and hopeless changes due to long-continued gallstone irritation — illustrated by one of the cases briefly mentioned in the beginning of this paper — we have a strong argument in favor of the invariable removal of gallstones.

Reviewing thus briefly the brilliant results of the early operative cases and the large mortality in advanced gallstone disease, as surgeons see them, we cannot but be impressed by the desirability of recognizing at the earliest possible moment the presence of gallstones. It may not be wise in every case to remove them, — indeed I do not advocate the indiscriminate removal of gallstones known to exist in the gall bladder. As I have said, I have not a few patients in whom I know gallstones to exist, and in whose cases I have not as yet advised operation. Knowing, however, to a certainty that stones are present in the gall bladder, and knowing also the precise anatomical conditions present, I am prepared to advise operation the moment the first symptom of impaction appears, unless this impaction should be of the briefest and most trivial character. A single recurrence of impactive (irritation) symptoms, like a recurrence of appendicular colic, is enough to justify operation. When gallstones are suspected, the indications for exploration are stronger than when they are known to exist, because, although we do not in the given case know the exact extent of the pathological changes in the biliary tract, we do know that in many cases these changes are out of all proportion to the symptoms upon which the explorations are based.

In making an early diagnosis of gallstones, one must consider very seriously the possible presence of those conditions of the stomach usually known as functional, for it would be as absurd to explore and drain the gall bladder for those transitory, permanent or recurring discomforts which are usually spoken of as dyspepsia as it would be to perform a pyloroplasty or a gastro-enterostomy. Although it has been said that most gastric symptoms are in reality mechanical, I am not able to concur in this opinion. There are doubtless many cases treated as functional disturbances of the stomach or of the intestine, under the sweeping diagnosis of gastric or, still worse, intestinal dyspepsia. So many patients come to my attention that are treated ineffectively for "intestinal dyspepsia" when the symptoms are really of mechanical origin, and amenable to mechanical treatment only, that I have felt called upon more than once to protest against a diagnosis so plausible, but at the same time so dangerous. So it is in the gastric symptoms treated as dyspepsia. Dyspepsia is a symptom or a group of symptoms, in many cases without organic changes, but in many others with them. It is as dangerous a symptom — because so common and so little feared — as metrorrhagia or rectal hemorrhage, and should be watched and feared quite as much. The tendency to regard epigastric symptoms as functional and of little danger must be fought as much as the tendency to look upon metrorrhagia as menstrual or climacteric, and upon rectal hemorrhage as piles, — it must be fought even more strenuously, because serious organic lesions of the stomach grow so quickly beyond the possibility of surgical relief. It is a pity, too, that organic lesions of the stomach are so hard to recognize, as compared with those of the uterus and of the rectum, for the stomach anatomically and pathologically presents a field much more hopeful in the surgical treatment of malignant disease than either the uterus or the rectum.

On the other hand, it must not be forgotten that the larger proportion of gastric symptoms are really of functional origin. Few live to middle age without experiencing some of the symptoms of indigestion — acute or chronic. True, many of these symptoms are owing to chronic appendicitis, gallstones, gastric or duodenal ulcer, and the like; true, the majority are functional and of no surgical importance; yet chronicity, recurrence and obstinacy are of such significance that these symptoms must be considered from the surgical point of view.

Symptoms which have been proved to be caused by gallstones, however little they may have conformed to the ordinary history of gallstones, cannot but suggest them when again encountered. Sudden distress in the epigastrium, therefore, however little inkling this symptom in itself may give of gallstones, becomes in the light of experience highly suggestive. In the light of reason and and knowledge, however little epigastric pain and distress and other digestive symptoms may indicate a gallstone origin, they at least attract my attention to such a cause. Insensibly — unreasonably, if you will — these symptoms hint so strongly at a gallstone origin, that I have many times made a correct diagnosis upon them. And I have learned by long experience to follow, even more and more as the years go by, the lead of first impressions. Not that I would advise a beginner to do so; but what one has learned as to the value of his first impressions he should not too quickly forget.

The time at my disposal forbids a detailed consideration of the differential diagnosis of diseases of the right upper quadrant. It is a field prolific with interesting suggestions, a field which becomes the richer in possibilities of brilliant results the more it is explored. And upon what do these brilliant possibilities chiefly depend? First, upon an early diagnosis that mechanical lesions exist; and secondly, upon prompt mechanical relief.

The diagnosis in the early stages of most of the diseases which gallstones simulate lies in a correct interpretation of pain in some form or other. The most frequent of all the complaints that I used to hear at the enormous clinics of the Boston Dispensary, especially in the room for women, were those referred to the epigastrium, and treated by attention as far as possible to the diet. So it was in a general medical practice of twelve years. Had it been suggested at that time that many of these complaints were in reality due to mechanical causes, either in the alimentary or in the biliary passages, the incredulity with which the suggestion would have been received may possibly be imagined.

At the present time we know by large experience that many of these obstinate cases, which to all general practitioners were — and are now — to the last degree discouraging under medical treatment, are as to cause purely mechanical and therefore remediable. That the pendulum has swung too far in the direction of surgical treatment of these affections, many of us sincerely believe; but that the investigations of thousands of observers, both medical and surgical, will before long have settled pretty accurately these questions, I have no doubt. In the solution of them no one field can be more prolific of good results than that of diagnosis; and no more effective means of perfecting diagnosis can be found than surgical explorations which establish beyond question the relationship between the mechanical causes upon which the subjective symptoms depend and the subjective symptoms themselves.

The first differentiation in diseases of the epigastrium and right upper quadrant lies between the mechanical and the functional, between the surgical and the medical, between those which can be cured only by mechanical measures and those in which the parts concerned are in perfect mechanical condition, but in which the physiological processes are out of order.

This differentiation is possible only by the exclusion of mechanical causes of symptoms, and these, in turn, only by the symptoms themselves; for it is evident that mechanical causes which are not demonstrable by the senses must be shown to exist by subjective symptoms alone.

When, therefore, a tumor can be felt in the suspected viscus — whether gall bladder, liver, or stomach, kidney or pancreas or colon; when the stomach contents bear evidence of ulcer or cancer; when blood is demonstrable in the stools or cells of malignancy in the urine, — then the question of mechanical origin is easily settled. When, however, all external and demonstrable signs of organic diseases are absent; when the disease — if malignant, of the pylorus for example — for mechanical cure demands the earliest possible recognition, — then the symptoms are necessarily subjective and the differentiation particularly difficult.

We will omit the consideration of perceptible physical signs which make organic disease conspicuous and confine our research to those subjective symptoms upon which all early diagnosis and effective treatment depend. In some cases physical evidence may be at hand, even in the earliest stages of the disease, long before any subjective signs are present. We are not considering, I repeat, these glaring cases, but the obscure ones, those in which the disease is so young that surgery offers a reasonable chance.

The distinction between gallstones and gastric diseases is chiefly important because under a wrong diagnosis of organic disease, we may operate uselessly, as in simple dyspepsia, gastralgia, atony, gastritis, gastro-duodenal catarrh and the like. On the other hand, we may, under a wrong diagnosis of functional disturbance, withhold an imperative operation for gastric cancer, ulcer, strictured pylorus, or gallstones.

Practically, therefore, in the diseases of the stomach and gall bladder the diagnosis should aim first to eliminate the functional disturbances, and thus to avoid the unnecessary operation. Is it within the bounds of human knowledge thus to avoid error; or, in our zeal to operate early upon diseases, like cancer, which so soon become inoperable, must we expect a considerable percentage of unnecessary explorations? Will the greatest good to the greatest number result from a large number of operations in which a few will prove unnecessary, or from a small number of operations in which most will prove useless because too late?

The early symptoms of gallstones, as compared with those of gastric diseases, show pain in some form, uninfluenced by any of the causes which precede purely gastric attacks.

So prevalent is the impression that epigastric discomfort, distress and pain are always owing to errors in diet, that the physician must be on his guard lest he himself be biased in favor of some dietary cause.

The distinction between gallstones and functional symptoms of the stomach lies in the patient's description of the pain; in its irregularity of recurrence; in the means required for its control; in the impossibility by any method of prophylaxis of preventing its return; in the absence of constitutional effects; in the maintenance of nutrition; and in the similarity of succeeding attacks with perhaps a gradually progressive change in them as the pathological conditions causing the symptoms themselves change.

Gallstone diseases, at whatever stage, are at times distinguished from early organic changes in the stomach only with the greatest difficulty. We cannot expect to tell the difference until there are some symptoms at least of organic disease of the stomach. Indeed, herein lies the real difficulty of successful gastric surgery. An organic gastric origin of epigastric symptoms means an organic change of such extent that physical signs of some kind are usually evident. To take a single symptom: recurrent spasms of pain in the epigastrium dependent upon a pyloric stenosis, though they may suggest gallstones at first, later, by their very persistence, make a gallstone origin impossible. The gastric spasm becomes in many cases visible, with vomiting, emaciation, and signs of dilatation. Until the stenosis becomes great enough to cause gastric spasm, there will be no pain, except that of the pain causing stenosis. Here again the importance of irregularity as to time becomes evident. Gall-bladder spasm may at first suggest gastric spasm, but time will soon eliminate most positively a gastric cause of pain. Strictly speaking, however, pyloric stenosis should not be considered, because we are considering conditions without physical signs, and stenosis cannot but cause perceptible physical signs — gastric spasms.

We are brought again, therefore, to consider the cause and nature of epigastric pain as dependent upon organic causes imperceptible to the senses. Here we must rely upon the evidence of those observers who have studied the connection between pain as described by the patient and the anatomical findings of the operation. I do not know myself where to find them described; for the time has not come, in my experience at least, when I have felt justified in opening the epigastrium for symptoms which do not suggest very strongly either gallstones or some mechanical lesion of the stomach. That the symptoms in the epigastrium described to me do suggest correctly gallstones is shown by the almost invariable presence of gallstones.

What, then, are the symptoms of gastric disease, both functional and organic, which in my experience do not mean gallstones? They are various forms of pain dependent unmistakably upon diet, — pain which occurs with regular reference to certain periods of digestion; which always follows the taking of certain foods; which persists a long time; which impairs strength and reduces weight if only temporarily; which, finally, does not require heroic remedies for immediate control.

Functional gastric troubles are eliminated by their response to medical treatment, whereas organic are confirmed by the failure of that treatment.

It may be inferred that pain and its various manifestations are caused by functional derangements of the stomach when they are brief, regular and easily controlled by treatment based upon the diagnosis of functional disease; when the symptoms for years have appeared at intervals without serious effect upon the constitution, and when there has never been at any time a suggestion of biliary obstruction; or when in the region of the gall bladder there has never been a localized tenderness or a perceptible tumor.

Organic disease of the stomach — if an ulcer — shows itself early by almost unmistakable signs. Confusion between gallstones and ulcer need never exist, except perhaps in contrasting the early stages of ulcer with the late stages of gallstones. Age, hematemesis, color of skin, length of attacks and methods of control in ulcer, contrasted with age, jaundice, length of attacks, and methods of control in gallstones permit few mistakes.

In the late effects of ulcer there is much more liability to confusion, in distinguishing between chronic cholecystitis with gallstones, and chronic pyloric obstruction with gastric dilatation. It will usually be evident, however, in which case to expect the extensive changes of gallstones and in which those of gastric obstruction and food decomposition.

But we are considering, I find, the cases in which there is extensive and visible evidence of disease, though not perhaps conspicuous evidence. Can we make a distinction between gallstones, functional gastric symptoms and beginning ulcer or beginning cancer? This is the real question.

I will try to answer it by asking another: Does cancer of the stomach in its inception cause pain, or, in fact, any other symptom whatsoever? If it does, what is the nature of this pain and of those other symptoms? If it does not, the early diagnosis of cancer is impossible.

I have discovered cancer of the alimentary tract in patients who have never shown the least sign of that disease. No form of cancer can cause such suffering as cancer of the intestines, and yet in these cases there is no pain before obstruction begins. I am convinced that cancer of the pylorus, of the body of the stomach, is absolutely without symptoms in the early stages, — before there is mechanical obstruction or pressure, before there is ulceration and hemorrhage, or before the gastric wall is so involved as to interfere seriously with digestion through changes in the gastric juice.

In a word, gastric cancer, at the stage most favorable for operation and permanent cure, cannot be diagnosticated unless, fortunately, it ulcerates early over a distinctly localized surface, or unless it happens in the proliferative, warty, or papillomatous stage to fill and obstruct the pylorus. Gastric cancer is like cancer of the breast and cancer of the uterine cervix — painless in its early stages.

It follows that the distinction between ulcer and cancer of the stomach, in those cases in which there is only pain, and gallstones in which there is only pain, must be based upon the character of the pain itself; its situation and extent; its time of occurrence; its direction, continuity, persistence, recurrence; its sharpness, dullness and like characteristics; its exciting causes and its controlling treatment; its constitutional effects, its periodicity, and, now and then, under careful and persistent observation, some objective symptom so trivial and doubtful perhaps as to be almost classed as subjective. All these things will tend to prove the existence, either of a biliary or a gastric cause which demands surgical exploration. In many cases this evidence will point so conclusively toward the biliary tract as to exclude the gastric. Indeed, organic gastric diseases are best diagnosticated by the exclusion first of biliary.

In all pancreatic lesions which simulate or depend upon gallstones the only thing of importance in diagnosis is the elimination of the cases in which operation is useless. Can any inoperable pancreatic lesion be eliminated from the diagnosis with sufficient positiveness to justify nonintervention on the ground of absolute hopelessness? I am sure that it cannot.

Cancer of the pancreas, a common disease, is hopeless, but it cannot be distinguished beyond a doubt unless there is a tumor so perceptible as to be accurately palpated. Such a tumor may sometimes exist, but I have never seen one. Pancreatic cancer is a possibility to be considered in the indications for operation and in the prognosis whenever exploration of the biliary tract is proposed. The diagnosis of pancreatic cancer is nevertheless easy, for it depends upon painless jaundice and emaciation. Evidence in the stools, whatever its theoretical value, has but little practical importance. The chief element in the history in favor of malignancy is the absence of pain from the very beginning of the jaundice, and perhaps long before the first appearance of jaundice; whereas if the jaundice were owing to gallstones, we should expect, in the progress of the stone from the gall bladder to complete impaction in the ducts, pain more or less severe. No diagnosis of pancreatic cancer should be made until there have been the most searching inquiries as to the previous occurrence of pain in some of the forms described — whether the diagnosis is gallstones, dyspepsia, biliousness, or something else. In certain cases the surgeon will find an impacted gallstone even when the history is absolutely without a suggestion of previous pain. In some cases the pancreatic portion of the common duct will contain a stone which, through the pancreatic tissues, will feel like a malignant nodule. The diagnosis of this condition beforehand is impossible; and so is the diagnosis of a stone in the opening of the canal of Wirsung, where I once found one (vol. lxi, p. 174).

Chronic pancreatitis may be expected in a certain proportion of cases, especially when there is jaundice. The diagnosis of a gallstone cause for jaundice does not exclude this condition, for it accompanies or follows gallstones, whether in the gall bladder or in the cystic, hepatic, or common duct. I have found enlargement of the head of the pancreas, without gallstones, in the comparatively young, and the disease has been permanently cured, apparently, by cholecystostomy. In suspected acute lesions of the pancreas a history of gallstones adds to the strength of the diagnosis. In all pancreatic lesions, except cancer, the exploration which establishes the diagnosis may be followed by curative operation, especially cholecystostomy for chronic pancreatitis.

The diagnosis between gallstones and certain lesions of the liver is interesting; but hepatic diseases are so rare that the question of differential diagnosis between these two conditions seldom comes up.

During my last service at the Massachusetts General Hospital a patient was transferred to my care who had been operated upon for suspected gallstones. None were found; but on the anterior surface of the great lobe of the liver there was a rounded, smooth prominence which suggested to the operator a neoplasm, probably malignant. Cholecystostomy was performed to relieve the existing jaundice. There was much hemorrhage following this operation, but the patient survived. For several weeks I watched the case, trying to decide upon the diagnosis and the best treatment. Before I had decided, however, the patient began to bleed from the nose, and she died of uncontrollable hemorrhage. The autopsy showed a hypertrophic cirrhosis, which no physician or surgeon had for a moment suspected.

Abnormal liver conditions, whether accompanied by jaundice or not, sometimes suggest gall-stones and are operated on uselessly. Can these diseases be successfully eliminated in making the diagnosis? I do not think that they always can. I have found gallstones in a hard, irregular tumor which was supposed to be a mass of cancer, but which was really an enlarged, irregular and thickened gall bladder. In other cases the diagnosis of gallstones has proved correct, but there has been also malignant disease.

Cancer of the liver, not associated with gallstones, is eliminated by its painlessness and by the character of its jaundice, as there is jaundice from obstruction of bile in one part of the liver, and bile in the stools from another part. Liver abscess might be confused with an acute cholecystitis, were the abscess in the immediate vicinity of the gall bladder. Such a condition would, however, be so rare that it need not be seriously considered.

Perhaps the most important disease to eliminate is cirrhosis with jaundice. This condition, however, is extremely unusual in a form which even remotely suggests gallstones; an hypertrophic cirrhosis might; no cirrhosis with ascites would, for the presence of ascites would immediately rule out a gallstone origin.

Many errors in diagnosis in diseases of the right upper quadrant come from inadequate study. Except in the plainest cases the patient in whom gallstones are strongly suspected should be examined several times, if the symptoms are not urgent. If the case is obscure, much time should be spent upon it, and the prognosis should be guarded. Cases of obscure origin, however, in which the symptoms are severe, must be explored at the earliest possible moment, even under the possibilities of an unnecessary operation.

Next in importance to the establishment of the diagnosis, especially with reference to gallstones, are the indications for treatment.

In many diseases the indications for treatment are comprised in the disease itself. In gallstones, for example, once the diagnosis is made from the symptoms that they cause, operation in the absence of contra-indications is always advisable. These contra-indications are the existence of serious lesions of other important organs, cachexia, anemia, hemophilia, inadequate powers of resistance from other causes, and perhaps the habit of tardy convalescence from trivial diseases — of falling an easy prey to evil complications.

Shall we operate when gallstones which cause no symptoms have been demonstrated at other operations? Are exploratory operations indicated when gallstones are only suspected? Gallstones which are known to exist should be removed the moment symptoms dependent upon them appear. I personally believe that removal is wise in all cases, whether they offend or not, provided the patient is in the best of conditions; if he is not in perfect condition, I should await developments. In cases in which gallstones are suspected, we should explore if the suspicion lies between gallstones and other conditions as serious or more serious. When, for example, the diagnosis lies between gallstones and a simple dyspepsia, the benefit of the doubt would consist in postponing exploration; when the diagnosis lies between gallstones and cancer of the pylorus, the benefit of the doubt demands immediate exploration.

The rule by which I have been guided and which I have rarely if ever had occasion to regret is that when symptoms exist in the right upper quadrant which are of a chronic character, when the attacks of pain or distress continue especially at irregular intervals, and when the attacks of pain in any form suggest the presence of gallstones, exploration is indicated, particularly when palliative measures have been employed in vain for a reasonable length of time. When later signs confirm the existence of gallstones, any measures other than surgical are unreasonable and ineffectual.

DISEASES OF THE BILIARY PASSAGES INCLUDING THE LIVER, THE GALL BLADDER AND THE PANCREAS.*

BY ELBRIDGE G. CUTLER, M.D., BOSTON

For convenience of consideration we may group the most important diseases of the biliary passages under four heads:

(1) Calculi or gallstones in the gall bladder and gall ducts and their effects.

(2) Inflammation of the gall bladder and gall ducts and their effects.

(3) New growths of the gall bladder and gall ducts and their effects.

(4) The various combinations of these three groups.

These diseases are not equally frequent.

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* Read before The Massachusetts Medical Society, June 13, 1906

Riedel and Kehr say that calculi of the biliary passages are found in 10% of all adult autopsies. Robson states that post-mortem records on persons of all ages and both sexes prove gallstones to be present in from 5% to 10% of all Europeans; in Strassburg the record being 12%, in Kiel 5%, and in Manchester 7.4%. Mosher found in the first 1,655 autopsies of the Johns Hopkins Hospital there were 115 cases of gallstones or 6.9%. Rolleston found them in 5.7% in the post-mortem records of the St. George's Hospital in London. Brewer found them 12 times in 100 subjects examined in the dissecting room of the College of Physicians and Surgeons, New York. Wright in his first 1,400 autopsies, at the Massachusetts General Hospital, found there were 120 cases of disease of the biliary passages and pancreas. Of these 95 were stone, 9 thickened bile, 6 cholecystitis, 4 adhesions of gall bladder to intestine, 3 small and contracted gall bladder, and 1 each hemorrhagic pancreatitis, stricture of ducts and cancer of the common duct. Among these cases were 3 of cancer of the gall bladder with gallstones, 3 of cancer of the pancreas without stone, 1 with cancer of the pancreas and secondary cancer of the common duct, 1 of lymphosarcoma of pancreas, gall bladder and liver with stone. In view of the greater frequency of gallstones I shall devote myself, in the short time at my disposal, more particularly to that form of disease.

In by far the greater number of gallstone cases there are no symptoms. Kehr says 95% are without them, and one or more stones may remain indefinitely without symptoms in a healthy gall bladder with pervious gall ducts. In the remaining 5% symptoms result which vary from the very slightest evidences to fatal consequences.

The chief symptoms produced by the abovenamed groups of disease are pain, local tenderness, chills and fever, vomiting, sweating, alteration of the rate of the pulse, jaundice, tumor of the gall bladder, changes in the urine, blood and stools.

Pain. — The pain is acute, paroxysmal, in the right upper quadrant, though it may be in the left according to Naunyn, occurs more often when the stomach is empty, frequently comes on at night, in most cases is referred to the stomach region and begins in the epigastrium and not in the region of the gall bladder (Ewald). Sometimes it is present all over the abdomen; it extends often to the right shoulder and back, both sides of the vertebræ; it is frequently relieved by eating, and sometimes by the escape of gas from the intestine. Its duration, frequency and severity are very irregular. Kehr and many authorities claim the pain to be dependent on inflammatory changes. Riedel says it is due to the advance of a stone in scarcely half the cases, but is caused by inflammation. Murphy, Furguson and others say that it is due to the effects of gallstone or to distention of the gall bladder or ducts independent of infection. Ewald says colic is caused by contractions. Characteristic is the sudden onset, its colicky nature, its sense of boring, tearing through. There is nothing peculiar to the pain *per se* which enables us to distinguish between inflammation, stone and cancer, though its accompanying symptoms will often enable us to make a diagnosis.

Tenderness. — The next most characteristic symptom is local tenderness in the part involved in the disease. Its greatest intensity is just underneath the free border of the ribs at the junction of the ninth rib and its cartilage. It is best elicited, according to Moynihan, by bimanual examination, the left hand pressing firmly up from behind the lower two or three ribs and the fingers of the right hand hooking under the costal margin while the patient draws a long breath. Robson's point is above and to the right of the umbilicus at the junction of the upper two-thirds with the lower one-third of a line drawn from the ninth rib to the umbilicus. He says it is the site of reflected pain passing along the splanchnic to the eighth and ninth dorsal nerves and thence reflected to the surface of the termination of these nerves. Tenderness is a sign of considerable importance. The tenderness is generally nearer the median line and slightly lower when the common duct is the seat of trouble.

Fever and Chills. — With the attack of colic, when due to stone, a severe rigor not infrequently occurs and may be repeated several times. It is accompanied by a rapid rise of temperature to 102° F., 103° F. or more, and with the subsidence of the pain it as rapidly disappears. Murphy has called attention to the fact that the temperature is a series of angles not curves. When inflammation of the gall bladder or ducts or their sequences have occurred fever is constant with exacerbations.

Vomiting. — Vomiting is of very frequent occurrence in an acute attack and follows the pain. It may be the most troublesome of the symptoms. It is reflex and may be independent of nausea. Its severity may be so great that a gallstone may be dislodged from the straining with temporary subsidence of the attack.

Sweating. — Sweating may occur during the acute attacks of gallstone colic or it may be the result of septic infection.

Pulse. — The pulse is quickened and its tension increased during an acute attack of gallstone colic; while in inflammation of the gall bladder or ducts it is simply accelerated and the tension may be diminished.

Jaundice. — Jaundice is one of the least constant of the symptoms. According to Brewer it is absent in from 80% to 90% of all operative cases. It may be caused by stone in the hepatic duct, or in the common duct, by inflammation of the hepatic or common duct, as a late symptom in cancer of the gall bladder, tumors of the hepatic duct, tumors of the common duct or neighboring viscera, by localized peritonitis distorting or constricting the common or hepatic ducts. It may be the result of functional disturbance (Ewald). Prolonged, persistent, deepening jaundice with progressive loss of weight and tumor of gall bladder is strongly suggestive of cancer, though it has been observed in impacted stone in the common duct.

Tumor of Gall Bladder. — Tumor may be found in inflammation of the gall bladder, in concretions in the same, and in obstruction of the cystic or common duct. It projects below the edge of the ribs and may be felt as a mass of almost any size, pyriform, moving with respiration, may or may not be tender, and may or may not be hard. Often its lower end is parabola shaped and gradually disappears toward the liver.

Urine. — The urine may or may not contain bile either temporarily or constantly. It frequently contains albumin as well; albumin is always found immediately after an attack of biliary colic due to stone and may rapidly disappear.

Blood. — Leucocytosis may be found in suppuration in all infections save those of typhoid fever (present in 50%. Musser).

Stools. — Examination of the stools determines the presence or absence of bile and degree of jaundice. Gallstones may be found a few days after an attack of colic, even as late as the fourteenth day (Robson).

Disease of the biliary passages is to be differentiated from gastric ulcer, appendicitis, renal colic, pancreatitis, angina pectoris, portal phlebitis, subphrenic abscess; gastric crises of tabes.

In *gastric ulcer* there is permanent hyperacidity and hyperchlorrhydria. In gall bladder colic chemical examination of the gastric contents during the interval shows no change from the normal. During or immediately after the attack there may be increase of the hydrochloric acid in the stomach, which disappears with the subsidence of the attack. In ulcer, ingestion of food brings on the pain regularly; whereas that of gall bladder colic is irregular, appears at varying intervals and frequently at night. Cholecystitis is frequently mistaken for perforation of peptic ulcer.

Appendicitis is sometimes difficult to differentiate, especially when the appendix occupies an abnormal position with its tip directed upward and perhaps near the liver. Inflation of the colon may be of service by displacing the painful point. Leucocytosis points here to appendicitis as empyema of the gall bladder has no leucocytosis (Ewald).

In *renal colic* the pain originates in the flank, extends down along the ureter and ends in the testis, or ovary, and there is frequently hematuria and vesical irritation.

Pancreatitis. — It may be impossible to distinguish between acute pancreatitis and acute cholecystitis or phlegmonous cholecystitis. As a rule, the clear description of Fitz will enable us to keep in the right direction.

Angina pectoris could only be confounded with biliary disease in irregular cases.

Portal pylephlebitis is distinguished by its antecedent history, its enlarged and painful liver and its pyemic symptoms.

Subdiaphragmatic abscess, the previous history, the physical signs (abdominal as well as thoracic), and exploratory puncture would serve to differentiate.

Gastric Crises of Tabes. — The other accompanying nervous symptoms would stamp the disease.

This short *résumé* illustrates the occasional difficulty of diagnosis, and, as said before, an absolute diagnosis may sometimes be impossible.

The diagnosis having been made, however, the indications from a medical point of view are to alleviate symptoms, to promote a free passage of bile to the intestine and to prevent stagnation of bile. The first of these indications is met by the well-known means and may be successful. They are, for the pain of gallstones, the subcutaneous injection of ¼ gr. of morphia or, better, morphia gr. ¼, atropia gr. 1-150, nitroglycerin gr. 1-100, repeated without the atropia in fifteen to twenty minutes if relief is not obtained in the first instance. Hot bath and hot fomentations to the hepatic region. Inhalation of ether or chloroform till the morphia has begun to act. Rest in bed and local applications till the tenderness subsides.

The promotion of the free passage of bile to the intestine and the prevention of concentration and stagnation in the gall bladder is thought to be favored by the giving of some of the soda salts as the sulphate or phosphate in doses of from 1 to 2 dr. daily. Oleate of soda in pill form has received the indorsement of Robson in cases that declined or were unfit for operation. The attempts to dissolve the gallstones *in situ* have not thus far been successful. Something may be accomplished in the way of prophylaxis by regulation of diet, prescribing regular exercise, the use of saline purgatives and care of the general health; but after all the case is almost always sooner or later sure to come into the hands of the surgeon, and it is far wiser to call him in early as soon as the diagnosis is established and together to determine on the future course rather than to wait till some serious complication has arisen and the surgeon must work at a serious disadvantage.

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DISCUSSION OF DR. CUTLER'S AND DR. RICHARDSON'S PAPERS.

Dr. R. H. Fitz, of Boston: Despite the recognized importance of the liver in promoting digestion, maintaining nutrition and acting as a safeguard against certain poisons, it must be admitted that our means of determining a failure in its various functions are extremely limited. There is but little difficulty in making a diagnosis of probable gallstones, and possible complications, requiring active, and more or less immediate mechanical treatment. More important is the diagnosis of the conditions which lead to the formation of gallstones with a view to their prevention. For generations such terms as congestion, torpor and sluggishness of the liver have been in common use, but the well-informed physician recognizes that they are merely conventional, and are by no means indicative of demonstrable disturbances of function of this organ. The liver thus is made the scapegoat for what frequently must be regarded as a faulty action of the stomach or bowels, too often induced by excesses or negligence on the part of the sufferer. Indeed, the remedies which are given with the announced purpose of acting on the liver, if they do not produce a more or less energetic carthasis, are considered to have failed in their effort to produce "portal depletion."

At present, as in the past, the clinician has no other means of satisfactorily determining an alteration of the functions of the liver than by an inquiry into the greater or less ease with which the bile leaves the biliary tract. He is unable to recognize alterations in the quantity or quality secreted under the influence of disease, and it is impossible for him to determine the state of other functions of the liver under morbid influences.

The same holds true in great measure with regard to the clinical determination of functional disturbances of the pancreas. These were made the subject of an address before the Congress of American Physicians and Surgeons a few years ago, and an attempt was made to bring forward what had been done in this direction, and to outline what was in process of investigation. It is unnecessary to state that the work of the intervening period has served no other purpose than to show that the expectations of the past have not been fulfilled, and that no material advance has been made in the clinical recognition of disturbances in the function of this organ.

It is the province of the future to throw light upon these questions. They are, in the first instances, problems for the laboratory, and the splendid provision made for such researches in the new buildings of the Harvard Medical School are indication of their importance. It is of especial significance that a new laboratory is to be added to the series, — one for the study of clinical pathology, in which the investigation of matters of importance in the practice of medicine shall be paramount.

The diagnosis of diseases of the liver and pancreas, therefore, must depend now, as heretofore, upon the determination of the position, shape, density, mobility and sensitiveness of the parts concerned in addition to the data derived from the history of the patient.

With the admission of the impossibility of making an accurate clinical diagnosis of the disturbances of function of the liver and pancreas, comes the simplification of treatment. To attempt to stimulate or to depress assumed disturbances in the function or functions of the liver incapable of recognition is a leap into the dark. It is far safer to undertake the treatment only of those disturbances connected with obstruction to the passage of bile and pancreatic juice into the intestine, with suppurative and necrotic areas, and with calculi and tumors. It is the mechanical treatment of mechanical disturbance which is fruitful at present, while the functional treatment of disturbances of function is the task of the future. It is left for the physician to aid in the determination of the time when such mechanical measures shall be applied, either through his recognition of the failure of diet and drugs to afford relief, or by the appreciation of persistent evidence of the maintenance of nutrition despite the increasing size of the tumor. With the exception, perhaps, of certain syphilitic lesions of the liver and pancreas it must be admitted that the independent diseases of these organs of a serious nature, if not remediable by surgery, are incapable of cure by any other method of treatment.

Dr. S. J. Mixter, of Boston: The subject is such a tremendous one that in a discussion there is little time to lay stress on more than a very few of the points that occur to the speaker.

First, I want to say one word as to diagnosis, — the importance of recognizing the fact that recurrent attacks of pain in the region of the liver almost always mean gallstones. If one goes on that idea, and with a history of frequent recurrent attacks of pain makes an exploration, it is very seldom that he goes wrong. He may not find gallstones, but he will find something that produces this condition.

There is one condition which we find instead of gallstones, which produces similar symptoms, and that is a chronic inflammation of the gall bladder.

I think it is the duty of the surgeon also, in the way of diagnosis, in all cases of laparotomy, except in very young people, where the incision is large enough, where the patient's condition is such as to warrant and where there is no dealing with a septic condition, to examine the gall bladder with the hand. I also think it is his duty to remove gallstones when they are found, if the patient's condition is such as to warrant it. This procedure is simple and harmless, and I think should always be done, but it should be done in a proper manner. In certain cases, as Dr. Richardson has said, you know there are gallstones present, and you do not remove them. I have done hysterectomies on cases where the patients had in their gall bladders gallstones of considerable size or number, but for some reason or other their condition at the time was such that it was considered best not to remove the stones; but with those patients, any symptoms appearing later can be acted upon immediately.

It must be recognized, however, that the most serious of all the gall bladder diseases are those which depend on acute inflammation without the presence of gallstones. Some are due to the presence of gallstones, but they are absent in some where there is a severe inflammation. We see such in typhoid fever.

A patient was brought into the hospital without any history, without any friends, a very sick man, with high temperature. I discovered a tumor in the region of the gall bladder. I operated and found an enormously distended gall bladder filled with pus, and drained it. The man died and we found that he had a severe typhoid fever. Some of my friends found fault for operating upon a case of typhoid fever.

The question of choice of operation has not been spoken of, and I think that is something which is important, but about which surgeons differ to a certain extent.

In gall-bladder diseases, whether due to stones or to chronic or acute inflammation, very often the question comes up, Shall we simply drain, or shall we excise? Now I think this depends upon the experience of the surgeon. There is, as the Mayos have shown, a slight added risk in excision of the gall bladder. To my mind there is an added risk in leaving an inflamed gall bladder, that is, one with chronic inflammation. I think it is better to excise rather than to drain. I have done this without any ill effects. It is a very easy operation, and even where the ducts have to be drained it is not difficult to drain them after the gall bladder is excised.

One point I think should be emphasized, and that is, in suspected gallstone cases, in inflammation of the gall bladder, the safest thing is exploration, because the after effects of very many cases of gallstones are so disastrous that it is better occasionally to open the abdomen unnecessarily than to leave the case to go on to impaction and ulceration which are so very much more fatal than the simple opening of an early case.

Dr. F. B. Harrington, of Boston: This subject is full of unanswered questions. We are coming to feel more and more that operation is called for when stones are known to exist or are strongly suspected.

There are two pictures of the operative conditions in gallstone disease which we should remember. First, the simple one of the presence of gallstones without sepsis. Here we have a condition analogous to the simple quiescent appendix in which operation is safe and the certainty of permanent cure is great. This condition if not relieved by operation may lead and often does lead to the second picture, the septic condition of the bile tract or the bile infected condition of the blood and tissues. These conditions may be combined, but alone or together they produce situations of the greatest gravity. I would therefore advise early operation in gallstone disease. As has been said, many cases of chronic indigestion are the result of the presence of gallstones. An interesting question is what is to be done with the gall bladder. It should be removed if much thickened, if gangrenous, or if there is a possibility of a tumor. It should be removed if there is a stone low down in the cystic duct, since the removal of this stone is likely to be followed by a stricture and obstruction of the cystic duct and pain from distention of the gall bladder by mucous secretion.

I formerly believed that the gall bladder, when once it had shown a tendency to develop gallstones, should be removed. I have changed my opinion because stones never or rarely form a second time, and because the removal of the gall bladder is a slightly more dangerous operation than its drainage. Moreover, drainage of the gall bladder is simpler and safer than drainage of the common or hepatic duct. It should, however, be remembered that cancer is sometimes primary in the gall bladder. The Mayos report one case of cure of cancer following early removal of the gall bladder.

AN EXPERIMENTAL STUDY ON THE BACTERICIDAL POWER OF VARIOUS SILVER PREPARATIONS.*

BY GEORGE S. DERBY, M. D. BOSTON,

From the Pathological Laboratory of the Massachusetts Charitable Eye and Ear Infirmary.

As more or less uncertainty concerning the efficiency of the various silver preparations exists, the following work was undertaken at the suggestion of Dr. Standish with a view to comparing in the laboratory their bactericidal power. The amount of ground to be covered was, however, so great and so many side issues presented themselves for consideration that the work is not as yet finished. Thus this paper simply contains a short description of the work and a summary of the conclusions arrived at up to the present time.

The main object aimed at was to compare the bactericidal power of nitrate of silver and some of the newer silver preparations which have been placed on the market, giving especial attention to argyrol, for which so much is claimed by its manufacturers and about which so much has been written from a clinical standpoint by many well-known physicians. It was fully realized that clinical conditions cannot be reproduced in the laboratory, also that great care must always be taken in drawing practical conclusions from laboratory evidence alone. The results are therefore presented for what they are worth, merely calling attention to the fact that the preparations investigated are of a more or less similar nature and that they were tested under precisely similar conditions.

In the first series of tests the following method was pursued: Two ccm. of the solution to be tested were placed in a small sterilized glass dish and a loopful of a twenty-four-hour culture of the Staphylococcus pyogenes aureus was stirred in thoroughly until the cocci were evenly distributed throughout the fluid. From this, loopfuls were taken at stated intervals and stirred into the water of condensation of blood serum slants. The water of condensation was then run over the surface of the blood serum and the tube was placed in the incubator for twenty-four hours, at the end of which time it was examined, and if no growth had taken place the water of condensation was again run over and the tube replaced in the incubator for a second twenty-four hours.

Remarkably consistent results were obtained in the 600 to 700 cultures taken according to this method. In one respect the conditions were extremely favorable for the solutions tested, namely, that no penetration was required. The Staphylococcus aureus was utilized for the work on account of its rapid and abundant growth and on account of the ease with which it is recognized. The preparations tested were purchased in the original bottles from reputable wholesale firms and the solutions were prepared in the laboratory according to the directions given by the manufacturers. In certain cases, notably argyrol, other specimens were obtained from the house apothecary of the Massachusetts Charitable Eye and Ear Infirmary.

The following silver preparations were tested: Nitrate of silver, argyrol, protargol, collargol, largin, ichthargan, albargin, argonin and argentamin. For most of these it is claimed that they do not precipitate in the presence of albumin and of urine.

Taking them up now I will endeavor to enumerate briefly and without too many figures the conclusions arrived at.

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* Presented by invitation before the American Ophthalmological Society, June 28, 1906.

Nitrate of silver, as is well known, forms dense precipitates with sodium chloride, albumin and urine. It is an efficient germicide as many have shown. Solutions varying in strength from ½% to 2% killed the aureus in from two to five minutes. An exposure of thirty seconds to the ½% solution was generally sufficient to prevent a growth in twenty-four hours but not sufficient to kill all the cocci.

Protargol: One per cent, 2%, 4%, 10% and 20% solutions of this drug were tested. The age of the solution up to one month seemed to make no difference in its action. No precipitate with albumin or with urine could be detected. Its bactericidal action is efficient though not so efficient as that of nitrate of silver. The aureus is usually killed by a 2% or a 4% solution at the end of from three to five minutes though occasionally a few colonies will grow after a ten minutes' exposure. An exposure of one minute will usually prevent a growth of the germ in twenty-four hours. Solutions of the same strength will kill the pneumococcus in one minute.

Collargol: This preparation is said to be a colloidal solution of metallic silver. It forms a rather opaque solution, and no precipitate with albumin or with urine could be detected. Its bactericidal power is comparatively weak as a growth of the aureus could be obtained at the end of twenty minutes using the 4% solution. With a 1% solution a growth was obtained at the end of one hour.

A comparatively small amount of time was devoted to the following five preparations and it is hoped to study them more thoroughly later.

Albargin, said to be a combination of nitrate of silver and gelatose, gave a precipitate with albumin and urine. The 1% aqueous solution is very irritating, as the writer found to his cost. Ten per cent and 20% solutions killed the aureus in from two to five minutes. The 1% solution gave a growth after fifteen minutes' exposure.

Ichthargan, a combination of silver and ichthyol, is also very irritating and also precipitates with albumin and with urine. In solutions varying in strength from 1-10% to 1% there was no growth after one to four minutes.

Argentamin, ethylenediamine-silver nitrate: Practically the same results were obtained with a 5% solution of this drug as with ichthargan.

Largin, silver protalbin, also gives a precipitate with albumin and with urine. It is rather irritating but is an efficient bactericide. The aureus was killed by a 10% solution in from two to five minutes.

Argonin: argentum casein, in a 5% solution appeared less irritating than the four preparations just mentioned. As it forms an opaque solution a precipitate could not be detected in the presence of albumin and of urine. No growth of the aureus could be demonstrated after from three to six minutes.

Argyrol: A large number of solutions of this drug were tested, since but little has been written concerning it except from the clinical standpoint. The manufacturers claim that it does not precipitate with albumin or with urine and that it is a very efficient bactericide. My results confirm those of Verhœff in regard to this preparation and are even more striking. A precipitate is obtained in the presence of albumin and of urine, though the capacity of the solution tends to disguise it. Its bactericidal power is exceedingly weak. In a large series of observations a growth of the aureus was obtained after exposure to the 10%, 25% and 50% solutions for one hour, one hour and two hours. A diminution in the number of colonies commonly appeared at the end of twenty minutes. Its action was uncertain, and while occasionally the germs were affected by a twenty-minute exposure, more often the cultures taken at the end of one hour showed a growth when examined twenty-four hours later. The age of the solution did not appear to be of importance.

In this first series of experiments the question of penetration was not considered, and this omission would seem to render the results worthless as far as any practical application is concerned. Many writers have taken the ground that on the power of penetration depends in a large measure the efficiency of the drug, and most of those who have worked on the silver salts in the laboratory have tried to measure this quality. Thus nearly every one of the preparations considered in this paper has been shown to penetrate to a greater depth than does nitrate of silver. Why, therefore, do we note a growing tendency to return to the old solution which has so many disadvantages?

If these newer preparations are less irritating, penetrate to a greater depth, and, with a few exceptions, act efficiently on so resistant a germ as the Staphylococcus pyogenes aureus, why is it that their action on the severer forms of conjunctivitis is so disappointing? Why is it that germicides are of so little value in all but the most superficial processes?

Nuttall was among the first, if not the very first, to call attention to the efficiency of normal blood serum as a bactericide. Vaughan and McClintock hold that this power is due to a substance secreted by the leucocytes, probably a nuclein. Lubarsch has shown that this quality is more marked when the serum is removed from the tissues as in the case of a blood clot, but it is of transient duration under such conditions. We are all familiar with the protective action of the body fluids. They resist bacterial invasion. They combat the effects of trauma, as is instanced by the formation of a blister to protect the deeper layers and by the covering of a wounded surface with a blood clot. Probably it is to the protective action of the blood serum that we must attribute the disappointing results obtained in the use of bactericides.

In a recent number of the *Journal of the American Medical Association* Verhœff called attention to the fact that if human serum be added to sodium aurate or to protargol their bactericidal power is immediately and completely destroyed. Whether attention has previously been called to this fact I am unaware. Verhœff's observations were made with diphtheria antitoxin and with hydrocele fluid.

My second series of observations was carried out along this line. Two samples of hydrocele fluid and one of bovine serum were obtained and preserved in sterile tubes. One ccm. of the serum was mixed with 1 ccm. of the silver preparation to be tested and the aureus stirred in as previously described. A very marked diminution in the bactericidal power of all solutions resulted. Nitrate of silver 2% showed a growth of the aureus after an exposure of thirty and forty minutes, protargol 8% after sixty minutes. Argyrol 50% gave an abundant growth after three and a half hours, the longest interval tried. The other preparations showed the same result, being affected in about the same proportion as was nitrate of silver. The three specimens of serum had about the same action as far as could be judged from the amount of work done.

That this same effect is produced on other germicides than the silver preparations is shown by the following: Lugol's solution, composed of iodine 1 part, KI 2 parts and water 100 parts, possesses a powerful bactericidal action. In one half strength it killed the aureus in from thirty seconds to one minute. With serum there was a growth at the end of five minutes. Corrosive sublimate 1-1000, to which serum was added, showed a growth after thirty minutes. Ordinarily it works in from three to five minutes, although occasionally a few germs escape for a longer period.

Therefore it would seem that in the protective power of the tissue fluids lies the principal reason for the inefficiency of antiseptics. What advantage is penetration to a drug if it reaches the disease focus diluted and with its bactericidal power almost a thing of the past? And not only must the bactericide reach the disease focus but often, in order to do good, it must penetrate within the cell. What better opportunity could there be for the action of a germicide than in the gonorrheal ophthalmia of the adult, and where do we find a more conspicuous failure? Some writers state that with argyrol they obtain better results than with the older solutions, and it seems to me that theoretically there is a certain amount of evidence on their side. Argyrol appears to be an almost inert solution; it is sterile and soothing. It mechanically washes away the pus, certainly does no harm, and does not deter nature from doing her best. Would not normal salt solution be as efficient and less objectionable?

At present it seems that our hope for a specific in gonorrheal ophthalmia is less likely to be gratified by the pharmacopeia than by the serum therapy of the future.

In the present state of our knowledge it seems possible to group the silver preparations tentatively into three classes. In the first we would put the unirritating ones of low bactericidal power, such as argyrol. The second would include the more effective and slightly more irritating bactericides, such as protargol. In the third, the very irritating preparations like nitrate of silver, which act in two ways,— as bactericides and as caustics, the value depending to a large extent on the reaction they set up.

CONCLUSIONS.

The silver preparations tested, with the exception of argyrol and collargol, are efficient bactericides in the laboratory.

Their bactericidal action and that of Lugol's solution and of corrosive sublimate is markedly retarded by the addition of a serum, such as hydrocele fluid or bovine blood serum.

It seems probable that on this fact largely depends the comparative inefficiency of antiseptics.

Clinical Department.

A CASE OF PYLORIC SPASM IN AN INFANT.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,
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Winthrop B. was born May 21, 1905, after a normal labor. His weight was 10 lbs. His mother began to nurse him but had practically no milk, so that at the end of two weeks he weighed but 9 lbs. He was then given a home modification of milk. While taking this he gained very little in weight, had a great deal of colic and poor movements, but did not vomit. After six weeks the colic increased and the movements became more numerous and of poorer character. He lost weight rapidly and soon got into a very serious condition. There was, however, very little vomiting. He was then given Allenbury's Food, which did not agree in any way. A wet nurse was procured Aug. 1, when he was two and a half months old. He digested the breast milk very well. There was very little milk, however, and he continued to lose weight, practically from starvation. Aug. 10 he was given a whey mixture. This was digested better than the previous mixtures had been. He was more comfortable, did not vomit and had better movements, but gained very slowly. Aug. 20 he was given Eskay's Food, which he took well. He was comfortable, did not vomit and had normal movements, but did not gain in weight. He was then given a peptogenic milk powder mixture which caused vomiting and undigested movements; then Eskay's Food again, and finally, the middle of September, modified milk mixtures from the Walker-Gordon Laboratory. He was comfortable while taking these but began to spit up a little. The movements from the bowels were normal but he did not gain. After a week he was given Mellin's Food on which he lost weight and spit up more, but had perfect movements. Another wet nurse was procured Sept. 27. He was comfortable and continued to have good-sized, normal movements, but the vomiting gradually increased. There was no nausea, the milk coming up in gulps without effort. The vomiting was never explosive. The milk vomited was sour but never curded. It was highly acid in reaction. The vomiting usually occurred soon after nursing but he often spit up a great deal just before the next feeding. He was seen Oct. 15, 1905, when five months old, in consultation with Dr. H. V. Reynolds, who had only recently taken charge of him.

In brief, he had never gained in weight. He had had much colic in the beginning, which had entirely ceased. The movements were at first undigested but latterly had been normal in character and size. There had been no vomiting in the beginning but this had gradually developed.

He was small and thin but his color was fair, his skin supple and his muscles strong. He was bright and happy. The anterior fontanelle was 4 cm. in diameter and slightly depressed. The bones of the skull did not overlap. The mouth and throat were normal. There was a slight rosary. The heart and lungs were normal. The lower border of the liver was palpable 2 cm. below the costal border. The spleen was not palpable. The level of the abdomen was the same as that of the thorax. The stomach area was not increased to percussion. Occasional waves of contraction could be seen running over the stomach. No tumor could be made out in the region of the pylorus. The extremities showed nothing abnormal and there was no enlargement of the peripheral lymph nodes. Although it was just before feeding time he gulped up considerable quantities of acid milk without nausea. He took the breast well without sucking air, getting 3 oz. in a few minutes. His weight was 11 lbs.

The diagnosis of pyloric spasm was made largely on the vomiting of breast milk, the time and manner of the vomiting, the character of the vomitus and the visible contractions of the stomach. Dilatation of the stomach was ruled out by the physical examination, chronic gastric indigestion for the reasons already mentioned and stenosis of the pylorus on account of the considerable amount of fecal matter.

A favorable prognosis was given. The breast milk was continued, the baby being fed at three-hour intervals and being given 3 or 4 teaspoonfuls of lime water, with a dropper introduced beside the nipple, during each nursing. The object of the lime water was to diminish the acidity and to retard the coagulation of the milk by rennet, thus favoring the passage of the liquid milk from the stomach into the intestine.

The baby did better for a week but then began to vomit as much as before. The vomiting usually occurred about three, ten and twenty minutes after nursing, but often recurred just before the next nursing. The bowels moved but once in thirty-six or forty-eight hours, but the movements were good sized and well digested. The baby gained 9 oz. during the last two weeks in October. The examination then showed a little fullness in the upper abdomen but no enlargement of the stomach to auscultatory percussion. There was no visible peristalsis and no tumor was made out.

There seemed no reason to change the diagnosis. Operation had been strongly advised by a number of surgeons who had not seen the patient, but it did not seem justifiable while the baby was holding its own or improving, and while the diagnosis was spasm and not stenosis of the pylorus. The treatment was therefore continued.

The vomiting gradually diminished and by the time he was a year old had entirely ceased. He gained slowly during November but after that he put on weight rapidly. Breast feeding was continued until he was fourteen months old, when he weighed 28 lbs., had 8 teeth and was perfectly well in every way. He was then weaned because of trouble with the wet nurse and has continued to do well.

It is, of course, impossible to prove the correctness of the diagnosis in this case, as the baby has recovered and was not operated on. Personally, however, I am sure that the condition was something more than a simple chronic gastric indigestion, and have no doubt that it was one of pyloric spasm without organic stenosis. In this case, of course, the condition was not congenital but acquired, presumably as the result of the long-continued use of foods, some good and some bad, which did not agree with the baby. There is, naturally, no means of knowing whether such a condition, if neglected, will eventually result in organic stenosis or not. There is reason to suppose, however, that in certain cases of congenital stenosis of the pylorus the primary, or at any rate a contributing, cause, is spasm, and it seems reasonable to suppose that long continued spasm after birth may also produce a stenosis. It is possible that in certain cases there may be a mild grade of congenital narrowing which is not sufficient to cause symptoms until spasm develops from some other cause, and in which the symptoms cease when the spasm is relieved. In such cases it is probable that the stenosis may manifest itself by characteristic symptoms in later life.

This case brings out certain points in regard to treatment. It shows the great advantage of breast milk in such cases as well as the useful action of alkalies. These not only diminish the pyloric spasm by diminishing the acidity, but by delaying the coagulation of the milk by rennet favor the passage of the liquid milk into the intestine. It emphasizes strongly the fact that in cases of spasm of the pylorus, and probably also in cases of moderate narrowing of the pylorus in which the symptoms develop comparatively late and in which the infant is in fair general condition and not losing weight rapidly, operation should not be done immediately but delayed in the hope that the symptoms may be relieved by medical treatment.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

INJURY OF THE PERIPHERAL NERVES.

Head and Sherren[1] have made an elaborate study of injuries of the various peripheral nerves, particularly those of the arm, with especial attention to the disturbances of sensation caused by such injury. They have, in the first place, gone over again the question of the sensory distribution of the various nerves; but for the methods of determining this and the precise distribution we must refer to the original article. They find, however, that there seems to be no real overlapping of the areas supplied by the different nerves; a lesion, for example, of the ulnar nerve produces complete insensibility of the little finger and a variable portion of the ulnar border of the palm, and a partial loss of sensibility over a further area in the palm and the ulnar side of the ring finger, but there is never any loss of sensibility in the area ordinarily ascribed to the median nerve; and, on the other hand, in any injury of the median nerve there is never loss of sensibility in the ulnar area. Recovery of sensibility may be complete in from two to three months in primary suture, but not for a year or more in the more complicated cases. The area which is ordinarily spoken of as showing diminished sensibility really shows a total loss of sensibility to stimulation with cotton wool, to the compass test and to the painless interrupted current. It is also not sensitive to degrees of temperature between 22° and 40° C. This form of sensibility they call "protopathic." A stimulus here, however, often produces a sensation which radiates widely and is accompanied by a peculiar tingling quality. This is due to the retained sensibility of the deeper subcutaneous structures. They believe that every portion of the body possesses three systems of afferent fibers. The first of these runs with the motor nerves and is not destroyed by the division of the cutaneous branches. These fibers supply the deep sensibility and are responsible for much of the sensation that remains after division of the peripheral nerves. The fibers which subserve "protopathic" sensibility respond to painful stimuli and to the extremes of heat and cold. They also endow the hairs with the power of reacting to painful stimulation. These fibers regenerate rapidly after the ends of the nerves have been re-united. If the operation has been successfully performed, sensation may return within from seven to ten weeks. In peripheral nerves the distribution of these fibers usually overlaps greatly the area supplied by the fibers of the adjacent nerves. Finally there is a system of fibers which subserves "epicritic" sensibility. The nerve fibers and end organs of this system endow the part with the power of response to light touch by a well-localized sensation. The existence of this system also enables us to discriminate between two points and to appreciate the finer degrees of temperature called cool and warm. These fibers regenerate more slowly than those which subserve "protopathic" sensibility after reunion of a divided nerve, and this form of sensation does not usually begin to return in less than six months even under the most favorable conditions. These researches of Head and Sherren and their classification of sensibility under the three forms of "protopathic," "epicritic" and deep sensibility, although based on careful study of a wealth of clinical material and supplemented by the heroic experiment by Dr. Head of division of his own nerves, are not fully in harmony with the investigations which have been made by Frey, Blix and Goldscheider, which have shown beyond much question that there are separate end organs in the skin for sensations of pressure, heat, cold and pain, which are conducted to and through the cord by separate systems of fibers.

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[1] Brain, xxviii, 116, November, 1905.

PUERPERAL PARALYSIS OF PERIPHERAL ORIGIN.

Von Hosslin [2] has continued the study of the paralyses of pregnancy analyzed in the last report [3] by a further study of puerperal paralyses of peripheral origin. In osteomalacia there are occasionally observed conditions of muscular weakness which are not due to the alterations in the bones, but which are true paralyses due to disease of the muscles, which become pale, fatty and of a waxy consistency with some atrophy, the whole condition closely resembling pseudohypertrophy. These paralyses develop slowly and may begin before any changes in the bones can be discovered. They usually are localized at first in the muscles of the pelvis and thigh and give rise to a characteristic waddling gait. The whole condition is very similar to that of ordinary muscular dystrophy. In a few instances acute polymyositis may develop either from auto-intoxication or as a result of other infections. Myositis occurring in normal pregnancy or in uncomplicated deliveries runs a subacute course and terminates favorably, but when associated with septic conditions it may show a more malignant character. A considerable number of cases of paralysis are due to affections of the peripheral nerves, either a traumatic neuritis, a neuritis due to localized inflammation, exudation or phlebitis, a post-infectious neuritis, or a toxic neuritis of pregnancy or the puerperium. The traumatic cases, as would naturally be expected, are associated with difficult labors and especially with the use of forceps, but a pressure paralysis may arise even in normal labor. The characteristic feature is that paræsthesia, pain or paralysis develops during or immediately after labor, and the most striking symptom is a severe pain in the hip and leg, coming on paroxysmally with each new pain or with each traction of the forceps. The occurrence of peroneal paralysis is due either to a light pressure upon the lumbosacral trunk in the pelvis or else to a more severe pressure where the peroneal nerve divides high up. An isolated paralysis of this nerve is, however, exceptional. The neuritis following inflammation, exudation, etc., develops usually some time after childbirth, toward the end of the puerperal period. Post-infectious neuritis is very apt to be localized in the arm and especially in the ulnar and median distribution. The same is true of the toxic neuritis of pregnancy and the puerperium when the paralysis is limited to only a few nerves. These cases seem to be connected with the obstinate vomiting of pregnancy. Finally, there are cases of true multiple neuritis which may sometimes be accompanied by the peculiar mental symptoms characteristic of other forms of neuritis, — the so-called Korsakow psychosis. The prognosis of these forms of neuritis is usually favorable, except in the multiple forms, which show a mortality of about 20%. Since in many cases the neuritis has developed only after delivery, it is not advisable, except under most urgent indications, to induce labor on account of the neuritis. The peripheral paralyses have no influence whatever upon the pregnancy or the delivery.

TONUS AND REFLEXES IN LESIONS OF THE UPPER PORTION OF THE SPINAL CORD.

Dreyfus-Rose [4] concludes that a sudden, complete section of the upper portion of the cord leads to a flaccid paraplegia with permanent loss of all the skin and deep reflexes except the plantar reflex. Incomplete section leads at first to a flaccid paralysis or to flaccid paralysis of a short duration followed by a spastic paralysis, or exceptionally to a spastic paralysis from the start. Slow compression in most cases is followed by a flaccid paralysis with reflexes preserved or exaggerated and followed by a spastic paralysis. If this compression, which at first causes a spastic paralysis, terminates in a complete destruction of the cord, the spastic paralysis may give place to a flaccid paralysis with atony and abolition of the reflexes. The loss of the reflexes and atony is not due to shock or to any injury of the short reflex arc. The higher cerebral centers exercise an exciting action upon the cells of the cord, or rather, the skin and deep reflexes normally follow the long arc, passing up into the brain from the cord. With a total transverse section, certain reflexes, such as the plantar, may follow the short reflex arc. The persistence of a spastic paralysis after a complete destruction of the cord in the course of a slow compression is explained in this way: the prolonged excitation of the fibers affects the ganglion cells of the spinal cord below, so that even after complete section this deviation of function may be manifested by contracture, but it is indispensable that this excitement be sufficiently strong and prolonged; otherwise, complete section will lead, as in the acute cases, to a flaccid paralysis with loss of reflexes.

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[2] Archiv für Psychiatrie und Nervenkrankheiten, xl, 445, July, 1905.

[3] Boston Medical and Surgical Journal, clii, 526, May 4, 1905.

[4] De tonus et des réflexes dans les sections et compressions supérieures de la moelle. Thèse de Paris, 1905.

SENSIBILITY TO PAIN AND TEMPERATURE IN DISEASES OF THE SPINAL CORD.

Piltz,[5] after a careful study of the literature and of a number of original cases, comes to the following conclusions: Disturbances of sensibility to pain and temperature may be of cerebral, spinal or peripheral origin. They are seen in hysteria, in capsular and cortical hemiplegia, in compression, injury or disease of the peripheral nerves and in injuries and diseases of the spinal cord. Disturbances of spinal origin occur in syringomyelia, in injury of the cord, in compression of the cord, in hemorrhage of the cord in the central region or in the lateral tract, in tabes, in pachymeningitis, in spinal syphilis, in myelitis from compression and in chronic myelitis. The distribution of the sensory disturbance is of the root type. In the spinal cord there is a special tract for the conduction of sensations of temperature and pain which is separate from the tracts for tactile sensibility and the muscular sense. This tract passes through the posterior root, the posterior horn, the anterior commissure of the gray matter, the antero-lateral tract and its lateral periphery, in all probability in Gower's tract. This tract consists of two neurones. The nerve cell of the first neurone lies in the spinal ganglion, the cell of the second in the gray matter of the opposite half of the cord. The lesion of one half of the gray matter of the cord gives rise to loss of sensibility to pain and temperature in a zone on the same side when it is limited to the posterior horn, or to a loss on the opposite side when it destroys the gray matter in the neighborhood of the anterior horn, and thus it may give rise to a loss on both sides. A limited lesion gives rise to a loss of sensibility to pain and temperature limited to a zone corresponding to the segment of the cord injured. A lesion of the lateral tract, including its periphery or Gower's tract, is always followed by a total loss of sensibility to pain and temperature on the opposite side, from the toes upward to about the level of the lesion. The area of loss of sensibility on the same side, due to a lesion of the gray matter of the posterior horn begins, as a rule, immediately below the seat of the lesion; and that of the opposite side, due to a lesion near the anterior horn, begins about four vertebræ below the seat of the lesion. The upper boundary of a total crossed anesthesia to pain and temperature due to a lesion of the white substance is about five or six vertebræ below the seat of the lesion. In the region of the upper boundary of a crossed total anesthesia to pain and temperature we often find a dissociation of the sensibility to heat, cold and pain, in which the upper boundary of the anesthesia to heat is the highest, that to cold the lowest and that to pain between the two.

SYPHILITIC DISEASE OF THE CENTRAL NERVOUS SYSTEM.

Erb and Fischler[6] return to the much-discussed question of the relation of certain diseases of the nervous system to syphilis. This relation Erb thinks is borne out by various convincing clinical facts. Among these are the observations of infantile and juvenile tabes and general paralysis, the frequent cases of conjugal tabes and general paralysis, the occurrence of the two diseases in certain families in parents and children, and, finally, certain striking observations of groups of cases of tabes or general paralysis in individuals who have been infected from the same source and at the same time and who come from different families. In the steadily increasing number of cases of infantile and juvenile tabes and paralysis the occurrence of syphilis either in the hereditary form or acquired in earliest childhood has been proven almost without exception. The same is true for the conjugal cases. In these latter the theory that they both live under the same external conditions is hardly tenable, since man and wife seldom, if ever, live under precisely the same conditions, are not exposed to the same injuries and do not possess the same hereditary constitution. In these cases, furthermore, the question of hereditary predisposition can be excluded, since they are not members of the same family, and the question of sexual excess, as a rule, rarely arises, especially with the wife. In the cases of so-called family tabes and paralysis, the question of environment, heredity and the like are also of less importance. The same external conditions are improbable in husband and wife, and still less in parent and child. The hereditary predisposition, if tenable in the case of parent and child, is not in the case of husband and wife, so that the only factor left is syphilis. The cases in which a number of individuals have developed tabes or paralysis after infection from one source are peculiarly striking. Seven glass blowers were infected and twelve years later five of them were investigated. Four had tabes or paralysis. In another instance five young men had connection with the same woman, four acquired syphilis from her and all four developed tabes or paralysis. In certain other cases tabes has developed within a short time — from six months to three years — after the infection. This has led to the hypothesis of a special nervous virus. In these individuals there seems also to have been an absence of the other predisposing factors so often alleged, such as exposure to cold, injury, excesses, influence of external conditions, worry, anxiety, etc., and especially of any hereditary influence. On the other hand, as is well known, only a small percentage of those who become infected with syphilis develop tabes or general paralysis. The hypothesis of a special nervous virus is therefore alluring and may serve to explain the conditions. In this connection reference must be made to the researches of Robertson[7] set forth in the Morison lectures of this year. He has found in general paralysis a special bacillus, the bacillus paralyticans, very closely resembling the diphtheria bacillus of Klebs-Lœffler, which he believes to be the specific cause of the disease, syphilis conferring a special predisposition to the invasion of this bacillus.

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[5] Archiv fur Psychiatrie und Nervenkrankheiten, xli, 951, July, 1906.

[6] Deutsche Zeitschrift für Nervenheilkunde, xxviii, 438, May, 1905.

THE THALAMIC SYNDROME.

Dejerine and Roussy[8] claim, after a study of a number of cases of lesion of the optic thalamus, that there is a definite group of symptoms corresponding to such a lesion, as follows: A slight hemiplegia, habitually without contracture and rapidly disappearing; a superficial hemianesthesia persisting with organic characteristics, which in certain cases may be replaced by a cutaneous hyperesthesia, but which is always accompanied by marked and persistent disturbances of the deep sensibility; a slight hemi-ataxia and astereognosis. To these constant symptoms are ordinarily added severe pain on the paralyzed side, continuing paroxysmally, often intolerable and yielding to no analgesic treatment; and athetoid movements in the limbs of the paralyzed side. In some cases there may be disturbances of the sphincters and hemianopsia. From these symptoms we can positively affirm that there is a lesion involving a definite portion of the thalamus; to wit, the external nucleus in its postero-external part and also a portion of the median and internal nuclei and a corresponding fragment of the internal capsule.

OPTIC NEURITIS AFTER OPERATION FOR BRAIN TUMOR.

Paton[9] has analyzed the conditions in 30 cases of optic neuritis which recovered from brain tumor operation. In 8 of these cases the vision remained practically unaltered. In 11 cases the vision was markedly diminished at the time of operation, in some being reduced to a bare perception of light. Recovery of vision took place after operation and in some cases was almost complete. Six were practically blind at the time of operation and regained no vision. In 2 cases failure of vision took place subsequent to and in spite of operation. In 3 cases one eye retained good vision while the other eye became blind or nearly so. In 22 cases out of 30, therefore, useful vision was saved. In all of the cases subsidence of the swelling was fairly steady after the operation, usually taking about two months. In some cases, especially with cystic tumors, it was much more rapid. In the cases which went on to blindness, the disk assumed an opaque, white appearance and the arteries became markedly diminished in size. In the cases which recovered, in from eight months to two years after operation it was practically impossible to tell that there had ever been an attack of neuritis.

TELEPHONE ACCIDENTS.

Bernhardt[10] has studied the accidents in telephone girls which have been ascribed to the use of the telephone. As a rule, the cause of the trouble was said to be an electric shock, but actually the current passed through the body of the operator only in the most exceptional cases and, as a rule, this current was exceedingly weak. The fright and the idea of a severe accident were excited by the sudden sensation of noise in the ear. In only a few cases was there any complaint of deafness, although the ear was the point of entrance for the alleged injury, but there was often complaint of pain in the region of the ear which was sometimes referred to the ear on the unaffected side. There was often hyperesthesia or rarely anesthesia of the affected side of the face. Vaso-motor disturbances were rare. There was never paralysis, but sometimes weakness of the extremities. Anomalies of the heart's action and a rapid pulse were very common. The mental changes were of especial significance — depression, tendency to tears, sensitiveness to noises and alarming dreams. Delusional ideas were rare. Most of the injuries were to be regarded as hysterical, although in some rare instances there may have been some organic injury from a severe current. The treatment is essentially psychical, but a modified faradic current is often beneficial.

EPILEPSY.

Turner[11] maintains that the existence of a marked hereditary taint and the presence of the various stigmata are indications that epilepsy is not due solely to excess of uric acid, hyperpyremia or auto-intoxication. Diet may modify or reduce the number of attacks, but it does not cure. It has been claimed that an excessive amount of meat increases the attacks and that a farinaceous diet diminishes them, but a vegetarian diet has not proved satisfactory. Salt starvation is occasionally useful, but there is some risk of bromism. In half a dozen cases he has tried a purin-free diet with satisfactory results in diminishing the number of attacks. He allows milk, eggs, butter, cheese, rice, macaroni, tapioca, white bread, cabbage, lettuce, cauliflower, sugar and fruits, and also articles containing a little purin, — pea meal, malted lentils, potatoes and onions. The foods to be avoided are tea, cocoa, coffee, fish, fowl, meat including sweetbreads; but in some cases the neck of pork, tripe and codfish may be allowed. The number of Turner's cases is altogether too few to support any theory of the advantages of a purin-free diet, but his previous investigations on the subject of epilepsy make his communication of value, and the suggestions therein contained may well repay further investigation.

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[7] Review of Neurology and Psychiatry, iv, 73, 169, 258, February, March, April, 1906.

[8] Revue Neurologique, xiv, 521, June 30, 1906.

[9] Review of Neurology and Psychiatry, iii, 541, August, 1905.

[10] Die Betriebsunfalle der Telephonistinnen. Berlin, 1906.

[11] Practitioner, April, 1906.

LOCAL ALCOHOLIZATION OF NERVE TRUNKS.

Brissand, Sicard and Tanon [12] have obtained good results by the injection of 1 or 2 cm. of a strong solution of alcohol (70% to 80% containing also 1% of stovaine) in the region of the nerve trunks in six cases of obstinate trigeminal neuralgia, and three cases of facial spasm. All the cases were cured or greatly benefited. In consequence of the success of this procedure in these cases they have made a trial of it in other affections associated with contracture, tremor, spasm and pain. They have thus far employed it only in affections of the leg, injecting about 2 cm. of the solution into the neighborhood of the sciatic nerve, in the ischio-trochanteric fossa just above the ischium. This is followed by a sensation of heat and heaviness, and redness and anesthesia in the leg, and sometimes by paresis of the toes and loss of the Achilles reflex. There may also be a diminution of the electrical reactions. In some cases there has been unpleasant burning and prickling in the foot, relieved by tepid wet packs and galvanism. In consequence of this, weaker solutions (40% to 50%) have been employed. In inflammatory conditions and, notably in sciatica, this procedure does harm, and in paralytics with difficult gait it apparently increases the trouble by increasing the paralysis. In painful contractures, in spasm, choreiform movements, athetosis and the tremor of paralysis agitans it has caused a cessation of the trouble for a number of weeks, with a disappearance of clonus and the Babinski reflex. The contracture of hemiplegia has disappeared, leaving the foot lax, for a number of weeks, but the permanent results of the treatment are as yet unknown.

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[12] Revue Neurologique, xiv, 633, July 30, 1906.

Reports of Societies.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING, HELD AT CLEVELAND, OHIO, MAY 31, JUNE 1 AND 2, 1906.

The President, Dr. Milton B. Hartzell, of Philadelphia, Pa., in the chair.

ADDRESS BY THE PRESIDENT.

Dr. Hartzell, in his opening address, urged that dermatologists be somewhat less of specialists, and somewhat more of physicians, who, while especially interested in disease as found upon the skin, yet retained an active and wholesome interest in every development of medical research, endeavoring to contribute a reasonable share toward the solution of the great problems of medicine, for the study of which dermatology offered in abundance such unexcelled if not unequalled opportunities.

DERMATITIS EXFOLIATIVA.

Dr. Burnside Foster, of St. Paul, Minn., who read this paper, stated that during the past fifteen years there had fallen under his observation quite a number of cases which he had grouped together under the general class of exfoliative dermatitis, because that name was descriptive of all of them, and because the dermatologists were by no means agreed as to the exact nature of the different types of cases which in a general way were to be described by the above name. Among the cases of this general type that he had seen, and which he reported in detail, were four cases of dermatitis exfoliativa neonatorum; also two or three cases which he believed were instances of the condition first described by Hebra as pityriasis rubra, and five cases of acute, idiopathic, exfoliative dermatitis. The most interesting problem connected with this group of cases, Dr. Foster said, was whether we had to do with one disease, varying in severity and extent in different cases, or whether we had several distinct diseases to deal with. Until more was known regarding them, he was in favor of retaining only the term dermatitis exfoliativa, adding the word epidemica or contagiosa for those cases where the infectious nature of the disease was apparent.

Dr. George T. Jackson, of New York, in referring to Dr. Foster's experience with carbolic acid in the treatment of dermatitis exfoliativa, said that he had experimented with the drug in psoriasis. Statements regarding the dose of carbolic acid were very conflicting. Personally, he had given from 12 to 16 gr. daily without any injurious effects, and some of his cases of psoriasis had done remarkably well under its administration. He began with a dose of 1 gr., in glycerine and peppermint water, repeated three times daily, and gradually increased.

Dr. Henry W. Stelwagon, of Philadelphia, said that while the objective features of the various exfoliative dermatites were much the same, the etiological factors that gave rise to them differed widely and were oftimes very obscure. The etiologic factor might differ in different cases, and again, the same specific poison might produce different forms of the eruption.

Dr. James C. White, of Boston, thought a distinction should be drawn between the various types of dermatitis exfoliativa, particularly from a prognostic standpoint.

Dr. S. Pollitzer, of New York, was surprised that pityriasis rubra pilaris had been mentioned in connection with this class of affections. It was, of course, entirely distinct, and had nothing whatever to do with dermatitis exfoliativa.

Dr. William A. Pusey, of Chicago, thought we could not hope to arrive at any definite grouping of these multiform dermatoses, which presented only one feature in common, namely, dermatitis.

Dr. A. Ravogli, of Cincinnati, said the character of the exfoliation or desquamation was an important factor in distinguishing between the various types of exfoliative dermatitis. He agreed that pityriasis rubra pilaris was a definite type, and identical with the lichen ruber acuminatus of Hebra.

Dr. Jay F. Schamberg, of Philadelphia, said that in the exfoliative types of dermatitis we were dealing with certain objective clinical phenomena which might be produced by a multitude of causes, both external and internal. We designated the condition dermatitis exfoliativa if a generalized redness of the body followed by exfoliation of the epithelium existed. There were various types of this disease, including the acute type, which ran its course in from four to six weeks.

Dr. Joseph Grindon, of St. Louis, said that it seemed to him that to call all forms of exfoliative dermatitis by one name would not be a step in the direction of simplicity, but on the contrary would merely complicate the subject. It was just as necessary to take the course of the disease into consideration as the subjective symptoms.

REMARKS ON SYPHILITIC ALOPECIA.

Dr. Hermann G. Klotz, of New York, read a paper on this subject, in which he offered the following conclusions: (1) That alopecia, or loss of hair, was *not* a common or regular symptom of the early stages of syphilis. (2) The slight loss of hair which was constantly taking place in healthy individuals as the result of the physiological change of the hair continued its existence through and beyond the course of syphilis, and must be taken into consideration before attributing to syphilis a loss of hair so slight as to pass unnoticed, or scarcely to attract the patient's attention. (3) The same rule applied to numerous cases of slight seborrhea of the scalp, which under ordinary conditions would not be considered worthy of notice or treatment. (4) In a certain number of cases, syphilis might be accompanied by a diffuse loss of hair which might extend more or less over the entire scalp, varying in degree, similar to that observed after other infectious diseases, such as typhoid fever, erysipelas, etc. (5) In the absence of any discoverable local changes in the skin this alopecia was apparently the result of malnutrition of the hair, its appendages, and the entire skin, as part of a general modification of the entire organism by the infection with the virus. (6) Such an alopecia was, therefore, not strictly a symptom of syphilis, directly due to the virus, but rather a complication. (7) Such an alopecia was directly dependent upon and in most instances proportionate to the general symptoms which might accompany the second period of incubation, and usually made its appearance several weeks after the onset of these prodromal symptoms, similarly to other infectious diseases, like typhoid fever. (8) Although such an alopecia might be very extensive, and affect other portions of the body, it showed a tendency to more or less complete restitution of the hair, unless the patient was too advanced in years, or was a subject of hereditary tendency to baldness. (9) An alopecia occasionally occurred in the form of ill-defined, irregular, small, sometimes coalescent patches of baldness, distributed principally over the back and upper portions of the scalp, and giving it a mangy or moth-eaten appearance. (10) Such an alopecia was observed almost exclusively in syphilitics, and was so characteristic that with extremely rare exceptions it was diagnostic of syphilis of the affected individual, either acquired or hereditary. (11) Such an alopecia was a characteristic symptom of syphilis, and almost always occurred at a period more or less remote from the time of infection, usually not before the end of the first year. It generally followed a very tedious course, although terminating in restoration of the hair. (12) In the absence of any discoverable anatomical changes of the skin, due to a local specific process, it was very difficult to explain the origin of this alopecia in patches.

Dr. James Nevins Hyde, of Chicago, said that while the moth-eaten appearance of the hair to which Dr. Klotz had referred was very characteristic of syphilis, and was usually accompanied by other well-marked manifestations of that disease, he had seen distinct exceptions to the rule. He reported a case in which this typical form of syphilitic alopecia was observed in a patient who at the time had few if any other symptoms of a generalized syphilis.

Dr. Charles J. White, of Boston, said he had seen two cases of this moth-eaten type of syphilitic alopecia which went on to total and permanent baldness.

Dr. Joseph Grindon, of St. Louis, had seen marked alopecia of this type occurring in individuals who gave a very uncertain syphilitic history. Personally, he regarded the condition as absolutely pathognomonic of syphilis, but he did not believe it occurred in hereditary syphilis.

Dr. Stelwagon said he could hardly agree that there was any type of alopecia that was invariably syphilitic.

Dr. Robert W. Taylor, of New York, thought the moth-eaten patches of alopecia on the back of the head were as pathognomonic of syphilitic infection as was the serpiginous syphilide, which Ricord used to refer to as the *signature de la syphilis*.

Dr. Grover W. Wende, of Buffalo, mentioned a case of alopecia that developed in the early stage of syphilis in which the loss of hair progressed to complete baldness, which had persisted up to the present time.

Dr. Klotz, in closing, said the point he particularly desired to emphasize in his paper was that alopecia was not a common symptom of early syphilis.

SYRINGOCYSTOMA.

Dr. Charles J. White, of Boston, Mass., reported this case, and discussed the nature of the lesions. The patient was a young girl with numerous small *café au lait* tumors on the neck. Pathologically, these flat nodules were epithelial branches and dilated cysts lying in the middle strata of the corium, and most probably represented new growths and cystic dilatations of the sweat ducts.

THE REPORT OF A CASE OF PARAKERATOSIS VARIAGATA

by **Dr. Henry G. Anthony**, of Chicago, with presentation of the patient. The speaker reported this case in detail, and said it was not established that dermatitis psoriasiformis nodularis, parakeratosis variagata and *erythrodermie pityriasique en plaques disseminees* were different manifestations of one and the same disease, as some writers believed, and until their identity was definitely determined, he considered it advisable to regard these eruptions as separate and distinct disorders. The points which they presented in common were their superficial character; the fact that they appeared rather suddenly in young, healthy individuals; that there were no succeeding groups of the eruption, but a steady imperceptible increase of lesions; that there was no itching, and that the disease was unaffected by treatment. The case presented by Dr. Anthony was a man, twenty-three years old, a laborer by occupation. The essential feature of the eruption was a combination of very slight, superficial erythema with a varying degree of pigmentation, presenting the appearance of disappearing plaques of lichen planus, and forming three kinds of lesions: (1) Light brown colored plaques in which there was erythema but with little pigmentation. (2) Chestnut brown colored plaques in which there was erythema with a good deal of pigmentation. (3) Bluish colored plaques which were exclusively cause by pigmentation.

Dr. S. Pollitzer, of New York, said the original description of parakeratosis variagata was as different from the case shown by Dr. Anthony as it was possible for two skin diseases to be. In the original case there was apparently a reticulation of almost the entire cutaneous surface, showing normal skin between slightly raised, glistening linear areas, strongly suggesting an extensive reticulated lichen planus annularis. In fact, Besnier, who saw the case before Unna, looked upon it as probably some form of lichen planus.

Dr. James C. White, of Boston, said that in his case, even in the most advanced lesions, the pigmentation or coloration did not advance beyond a very slight degree, and was what might be called rust red.

Dr. Anthony, in closing, said that since the original description of parakeratosis variagata, to which Dr. Pollitzer had referred, was published in 1890, a number of cases had been reported in which the reticular arrangement of the lesions was entirely absent. He was inclined to believe that Dr. Pollitzer laid too much stress upon that single feature of the eruption, which personally he regarded as of very little importance.

(*To be continued.*)

Book Reviews.

Nursing: Its Principles and Practice. For Hospital and Private Use. By Isabel Hampton Robb, late Superintendent of Nurses and Principal of the Training School for Nurses, Johns Hopkins Hospital, Baltimore, Md.; late Superintendent of Nurses, Illinois Training School for Nurses, Chicago, Ill., etc. Third edition, revised and enlarged. Illustrated. Pp. 565. Cleveland: E. C. Koeckert. 1906.

Mrs. Robb is an accepted authority on the subject of nursing. Her experience for many years at the Johns Hopkins Hospital in Baltimore, following her preliminary training at the Bellevue Hospital in New York, has peculiarly fitted her for a wise and sound presentation of this increasingly complicated subject. This volume is a third edition, carefully revised, and enlarged by upwards of fifty pages. The general appearance and scope of the book are, however, unchanged, and it should continue to serve in the future, as it has in the past, as an excellent text-book for the nurse in her years of preliminary study. We regret that more attention is not given to private nursing and the different conditions there presented over the work required in a hospital ward. The natural tendency is to make the work of the nurse stereoptyped, whereas her ultimate success in private practice depends in large measure upon the lack of this very attribute. Mrs. Robb is admirably fitted, no doubt, to discuss the ethics of private nursing. The subject should have one or more chapters in any modern text-book.

The World's Anatomists. Concise Biographies of Anatomic Masters, from 300 B. C., to the Present Time, Whose Names Have Adorned the Literature of the Medical Profession. By G. W. H. Kemper, M.D., Professor of the History of Medicine in the Medical College of Indiana, Indianapolis, Ind. Revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

The author offers us in this small booklet of 79 pages a brief biographical sketch of those men in the past who have built up the science of anatomy. The only criticism one would make is that the accounts are too brief, but as a ready means of reference the book holds a useful and unique place. Many half-tone portraits of distinguished anatomists are interspersed throughout the text. It would be well were such biographic accounts available of the leaders in the other departments of medicine.

Memoranda of Poisons. By Thomas Hawkes Tanner, M.D., F.L.S. Tenth revised edition by Henry Leffmann, A.M., M.D., Professor of Chemistry in the Woman's Medical College of Pennsylvania, etc. Philadelphia: P. Blakiston's Son & Co. 1905.

This is the tenth edition of this small book on poisons. The facts are succinctly stated and easily found. Such a book is certainly of value and may well find a constant place in the practitioner's bag.

A Compend of Operative Gynecology Based on Lectures in the Course of Operative Gynecology on the Cadaver at the New York Post-Graduate Medical School and Hospital. Delivered by William Seaman Bainbridge, M.D., Adjunct Professor of Operative Gynecology on the Cadaver, New York Post-Graduate Medical School and Hospital; Consulting Gynecologist, St. Mary's Hospital. Compiled, with additional notes, in collaboration with Harold D. Meeker, M.D., Instructor in Operative Gynecology on the Cadaver, New York Post-Graduate Medical School and Hospital; Assistant, Department of Gynecology, Vanderbilt Clinic, College of Physicians and Surgeons, New York. New York: The Grafton Press. 1906.

This is an unpretentious little volume of 66 pages, written for the benefit of the students of the Post-Graduate Medical School in New York. The different operations are described briefly, rather too briefly, for clearness, in places. The operations are taken up in the order in which they would be approached in making the best use of a cadaver. In addition to the customary gynecological operations we find saline infusion, skin grafting, femoral hernia, inguinal hernia, umbilical hernia, appendectomy and miscellaneous points. On the whole the book is well put together and should prove useful to the student of gynecology. There are no illustrations.

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OPENING OF THE NEW HARVARD MEDICAL SCHOOL BUILDINGS.

Four years and a half ago we commented editorially on the proposed extension of the Harvard Medical School as follows:

"Within a week public announcement has been made of the completion of the amount desired — nearly $5,000,000 — for the plan of development of the Harvard University Medical School. The situation, as regards medical education, is unprecedented. Never before, so far as we know, has such a sum of money been set aside for the immediate purposes of medical science. It is a clear and final recognition of the fact that in the popular mind medicine has taken its place among those branches of human endeavor which have a distinct right to expect and claim liberal and permanent endowment. Such has been the attitude of the many contributors to the fund for the extension and development of the Harvard Medical School. When the means have been provided for such an expansion as this promises to be, the responsibility of the givers ceases and that of the receivers begins. This fact, no doubt, all who are interested in the university at large and in the medical school in particular are pondering at the present time. It has been a task of much responsibility to provide the requisite means for the accomplishment of this new enterprise; it is a far greater responsibility to provide for the wise expenditure of the large sum now available. The real question at issue is not how many buildings may be built or how complete the facilities for students may be made, but rather how the best interests of the whole profession of medicine may be fostered and invigorated, and thereby the greatest good of the people at large be subserved. This is the duty which the university has taken upon itself, in venturing upon this great expansion of its medical department."

Since these words were written a group of buildings has been erected which represents an equipment for medical instruction probably unequalled, either at home or abroad. The architectural success of these monumental buildings cannot be questioned. It remains for the faculty of medicine to justify the time and thought represented in their construction by a renewed sense of its responsibility toward the medical education of the future. The material equipment has been provided, and it is not to be questioned that the best energy of the men now connected with the school in a teaching capacity and those who are to follow in their footsteps will accomplish for the university and for the world at large results which are already being foreshadowed.

It is well, however, at this time of general rejoicing in the completion of the buildings that the possibilities and necessities of the future should be considered from various standpoints. In the first place, the buildings themselves, though they may attract students and lend a certain inspiration to the work of teachers and students alike, are but a step in the constitution of an efficient medical school. There should, and will, be no tendency toward a relaxation of effort because the material side of the work has been so successfully accomplished. As we said when the buildings were first under consideration, the responsibility of those concerned in the teaching and in the guidance of investigation would begin when they were completed. What the school will need in the immediate future as never before is a group of men devoted on the one hand to teaching and others equally devoted to that essential element of medical advance, — investigation of new problems. The school is taking a wise step in admitting to its courses men who are not candidates for a degree. From their ranks may well come the unusual men who have the capacity and the desire for the self-sacrificing work of special investigation. As we have often urged before, the school will also need to seek out and cultivate teachers of capacity in order that students may derive the greatest benefit from the opportunities here offered them.

Equipped, as the school now is, with laboratory facilities which would seem to be sufficient for a century to come, the necessity of a university hospital in immediate connection with the school becomes increasingly apparent. This need we comment on in another column, and it needs no reiteration here; fortunately, the prospect of its accomplishment is by no means remote. When it comes, the medical school will represent an equipment for medical study of which the present buildings are an adequate prophecy.

Inspiring as the contemplation of the future may be to the younger generation, who are looking forward to years of activity, those men of the older generation whose efforts have brought the Harvard Medical School to its present state of efficiency and who now see accomplished the work to which they had been looking forward, have every reason for legitimate self-congratulation. The whole growth of the medical school from its simple beginning in Cambridge upwards of a hundred years ago to its later removal to Boston and gradual expansion stands as a permanent tribute to the earnest and high-minded men who foresaw for medicine an ultimate position of dignity in the realm of science. That their foresight did not err is sufficiently exemplified by this, we hope, final home of the Harvard Medical School. Eagerly as the whole medical profession in this community has entered into the spirit of the new undertaking, the names of Prof. Henry P. Bowditch and Prof. J. Collins Warren will stand out pre-eminent as the men who bore the great burden of the new undertaking. For this work the whole body of alumni are grateful.

It is not to be doubted that the career of the Harvard Medical School, brilliant as it has been in the past, and associated with the best names and traditions in medicine, has before it a future of increasing usefulness in a greatly broadened field. The dignified exercises which this week have marked the formal opening of the new buildings could leave no other impression than that medicine has finally taken its place among the great constructive sciences, and that Harvard University, through its generous benefactors, has recognized this fact by the erection of the magnificent buildings which the alumni and invited guests have met to dedicate.

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THE NEED OF A HOSPITAL FOR THE HARVARD MEDICAL SCHOOL.

With the dedication of the new buildings of the Harvard Medical School, the fact is not to be lost sight of, that in them are provided facilities for laboratory teaching and that alone, for instruction which occupies less than one half of the students' four-year course. Practically, no provision is made in them for greatly improved clinical instruction, nor is it claimed by the friends of the school that clinical teaching here has reached a degree of excellence which requires no radical improvement. The problem how to to give clinical instruction commensurate with the laboratory courses which may be reasonably anticipated in such a complete plant, must be honestly met, and not put aside.

For the successful development of any university department two things are necessary, — freedom of choice of instructors and means and material for work. So for the highest development of the clinical courses of the Harvard Medical School, it is essential that the University be able to call to these chairs the best available man from any part of the country. In order to do this the University must be in a position to pay the clinical teachers adequate salaries and furnish clinical material for teaching. Furthermore, for successful clinical teaching the student of to-day must have a working laboratory, and the wards of a hospital constitute that laboratory. Free access to patients, ambulatory and in bed, is a prerequisite for good clinical teaching.

This need of the University can only be met with a hospital in which the University has the power of appointment and can grant its students free access to the wards and out-patient department; in other words a university hospital. This is now the greatest need of the Harvard Medical School, a need which must be met before Harvard can hope to establish a medical school in keeping with its magnificent new laboratory buildings.

The present situation of clinical instruction at Harvard was admirably stated by Dr. Mallory [1] last June before the Alumni Association of the Harvard Medical School. He pointed out the existing limitations in the appointment of clinical instructors, the lack of means and incentive for the development of clinical teachers, the practical control of the clinical departments of the medical school by the Boston hospitals and the impossibility of great improvement under the present local conditions, a situation which could scarcely be improved except by the establishment of a hospital under university control, and living salaries for clinical teachers.

Will the University be able to meet this need? All its friends trust that it may and that within the next hemi-decade a university hospital will rise to adorn the knoll back of the new administration building and furnish such facilities for clinical teaching as will perfect the Harvard Medical School until it stands pre-eminent. Then and then only can the active competition of the other medical schools of the country be completely met.

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[1] Science, Sept. 14, 1906.

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HEART BLOCK AND CARDIAC ARRYTHMIA.

One of the most interesting sessions of the Section on Medicine of the British Medical Association at Toronto was that devoted to a symposium on heart block. To some this is perhaps a new term and may need a word of explanation. The contraction of the heart begins in the auricles about the great veins and passes down to the ventricles. Its path of conduction is believed to be muscular and not nervous; this theory, therefore, necessitates a muscular continuity between auricles and ventricles. Any delay or break in this transmission interferes with the orderly sequence of ventricular contractions and produces arrythmia; or, when the transmission is completely blocked, the Stokes-Adams syndrome or extreme bradycardia results. According to this conception all these forms of cardiac disturbance are due to lesions affecting the auriculo-ventricular conduction path of His, that particular portion of the myocardium concerned in the transmission of the contraction impulse.

At this symposium the subject was extremely well discussed, the pathological anatomy by Professor Aschoff, formerly director of the Pathological Institute at Marburg, now Ziegler's successor at Freiburg, the physiology by Professor Erlanger, formerly of Johns Hopkins, now at the University of Wisconsin, and the clinical aspects by Professor Gibson of Edinburgh, Dr. J. Mackenzie of Burnley, England, and others. These gentlemen advanced much evidence in favor of this theory, a theory which in fact is rapidly becoming well established and bids fair to be of much aid in the interpretation of many hitherto imperfectly understood heart conditions.

With no intention of minimizing the excellence of the work contributed by others of this group of men, it may be allowed to call special attention to the contributions of Mackenzie, since his work was carried on in a small city amidst the exacting duties of a busy private practice. Under these conditions, working for the most part on private patients, he has done scientific clinical work of a very high order and furnished the general practitioner an example well worthy of imitation.

THE ANATOMICAL BASIS OF HEART BLOCK.

The present conception of the subject of heart block is the result of the co-operative work of anatomists, pathologists, physiologists and clinicians, and like most new ideas has gradually grown into being as the result of studies stretching over a number of years. The historical development of this subject dates some sixty years back when Purkinje[1] descibed certain fibers in the heart of the sheep, since known by his name, though their function has only recently been surmised. More than twenty years ago Gaskell[2] maintained the myogenic theory of the heart contraction and described for cold blooded animals a muscular connection between auricles and ventricles. Ten years later Kent[3] and W. His, Jr.,[4] independently described in higher mammals a band of muscle connecting the auricles and ventricles. The studies of His, Jr., were the more complete and included man, and to him belongs the greater credit of the discovery of the bundle of fibers which now usually bears his name. He described a narrow band of muscle fibers extending from the right auricle to the left ventricle, appearing in the septum just below the pars membranacea where it divides into two branches. This fiber bundle lies just beneath the endocardium and is in some hearts distinctly visible owing to its paler color. Histologically these muscle fibers differ from the ordinary cardiac fibers in having their contractile elements less well developed so that the fibers are rather more embryonic in appearance. Furthermore the fibers have a definite connective tissue sheath. These fibers His, Jr., considered as the conduction path of impulses from auricle to ventricle.

Tawara,[5] a pupil of Aschoff, has this year described for a number of mammals including man the extensive distribution of these conducting fibers in numerous ramifications to the papillary muscles and walls of the ventricles, and his results have been confirmed already by the studies of Keith and Flack.[6] In some animals, particularly the sheep, these fibers, long ago described by Purkinje, are very easily recognized histologically. In man there is greater difficulty, but their wide distribution seems proven.

Aschoff, in the Toronto symposium on heart block, described the work of his pupil Tawara on the conduction fibers and called attention to the importance of lesions affecting these fibers in explaining a variety of cardiac lesions (forms of dilatation and hypertrophy with heart failure), previously but slightly understood, on the basis of their being due to focal inflammatory lesions. Much work yet remains to be done on the pathology of the heart with reference to these fibers. Their anatomical distribution seems on a firm basis, and their function of conduction has much evidence of experimental physiology in its favor. Their importance in heart block appears proven. The knowledge of these fibers opens a very important chapter in cardiac diseases.

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[1] Archiv fur Anat., Phys. u. wissensch. Med., 1845.
[2] Jour. of Phys., 1883, iv, 43.
[3] Jour. of Phys., 1893, xiv, 233.
[4] Arbeiten aus d. Medizin. Klinik zu Leipzig, 1893.
[5] Das Reizleitungssystem des Saugetierherzens, Leipzig, 1906.
[6] Lancet, Aug. 11, 1906, p. 359.

THE PROSPECTIVE STUDENT OF MEDICINE.

With the coming opening of the medical schools our English contemporaries, the *Lancet* and the *British Medical Journal*, as is their custom, devote their entire issue of Sept. 1 to a discussion of medical questions as related particularly to the intending student of medicine. Naturally, little new may be said each succeeding year, and a repetition of the advantages of the medical profession and of its peculiar difficulties is perhaps unnecessary, except for those who are considering the choice of a profession. There are, however, certain matters of more than passing interest which the last few years have developed, and that is the tendency both in America and Europe toward a falling off in the number of students undertaking the study of medicine. We have commented upon this from time to time and attempted to find reasons for a fact which has apparently become unquestioned. It is not necessary to speculate on this point now, but a somewhat striking commentary on the situation is offered by a recent circular issued by the Association of French Physicians urging students not to enter the medical profession too hastily. A recent number of our contemporary, the *Medical Record*, comments on this circular, and on the whole approves its import. The French physicians base their argument chiefly upon the fact that the overcrowding of the profession in their country has reached the limit of endurance, in consequence of which physicians and their families are daily experiencing increasing financial difficulties. They, therefore, bewail the fact that students are still crowding into the profession, although not needed and with small opportunity for financial success, whereas other professions and callings offer far greater opportunities. Our contemporary is of the opinion that the action of the French Association might well be imitated in this country with the hope that discouragement at the outset of the student's career would not turn aside the enthusiastic and capable but would reduce the numbers of the inefficient.

We are inclined to think that the practical working out of this idea would not always result as anticipated. It is an unquestioned fact that many students enter upon the work of medicine with no enthusiasm or apparent aptitude, who later find their place and accomplish work of high merit. If a general census were taken of successful physicians, we imagine a very sensible proportion would be found to have cultivated their interest in their profession after they had entered the medical school or even begun practice. To discourage students entering medicine or any other profession by pointing out to them the overcrowding and the difficulties in their way would not, we believe, conduce to the ultimate best interests of the profession in question. The brilliant investigator or the highly successful practitioner rarely gives evidence of his full capacities in the early years of his medical course, and certainly not before he has begun his medical studies. No doubt the profession is overcrowded, but certainly not by the best men, and to discover the best men should not be discouraged.

A DEPARTMENT OF CURRENT LITERATURE.

In this issue of the Journal we begin a department of current literature. In this department it is proposed, from week to week, to abstract the articles of certain medical journals in as critical a manner as possible. It is not intended that this department of the Journal shall in any sense take the place of the long-established department of medical progress. It is hoped, on the contrary, that it may be supplementary to this older department. The abstracts will appear weekly and will include in their scope not only American journals, but certain foreign publications as well.

MEDICAL NOTES.

The Huxley Lecture. — Announcement is made that Prof. Ivan P. Pavloff, of St. Petersburg, will this year give the Huxley Lecture at the Charing Cross Hospital Medical School, London.

Appointment of Harry T. Marshall, M.D. — Dr. Harry T. Marshall has received the appointment of pathologist to the Bureau of Science at

Manila. Dr. Marshall was at one time connected with the Johns Hopkins University.

Research on Syphilis. — According to *Science* the Simon Fund of $25,000 for the furtherance of research on syphilis has been divided between Professor Neisser, of Breslau, who receives $19,000; Dr. J. Siegel, who receives $4,500, and Dr. Lesser, to whom $1,500 has been awarded.

Suppression of Opium. — It is reported that an edict has been issued by the Chinese Government forbidding the use of opium, both foreign and native, within a period of ten years. The vice of opium smoking is strongly condemned, and regulations are urged to prevent the cultivation of the poppy. The trade in opium has been of great financial importance, not only to China, but also to the western powers.

The Drinking Water of Washington. — Practical experience with the new filtration plant at Washington, which was recently installed at an expense of about seven million dollars, shows that it is incapable of furnishing a supply of germless water. The water is very considerably clarified, but typhoid bacilli may pass through, hence the great danger from this disease is not obviated by its use. It is stated that the people are ordered to boil their water in view of these facts. It is thought that the failure of this filter will do much toward introducing the copper sulphate treatment for water supply.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Sept. 26, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 35, scarlatina 9, typhoid fever 78, measles 1, tuberculosis 43, smallpox 0.

The death-rate of the reported deaths for the week ending Sept. 26, 1906, was 18.01.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Sept. 22, 1906, is 235, against 200 the corresponding week last year, showing an increase of 35 deaths and making the death-rate for the week 20.35. Of this number 129 were males and 106 were females; 231 were white and 4 colored; 166 were born in the United States, 64 in foreign countries and 5 unknown; 68 were of American parentage, 143 of foreign parentage and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 31 cases and 4 deaths; scarlatina, 15 cases and 0 deaths; typhoid fever, 71 cases and 8 deaths; measles, 4 cases and 0 deaths; tuberculosis, 34 cases and 19 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 22, whooping cough 4, heart disease 19, bronchitis 1 and marasmus 11. There were 10 deaths from violent causes. The number of children who died under one year was 60; the number under five years 85. The number of persons who died over sixty years of age was 47. The deaths in public institutions were 83.

There were 2 cases and 1 death reported from cerebrospinal meningitis during the week.

A Centenarian. — A negro, Charles Reed, died in Newton, Mass., recently, at the reputed age of one hundred years. He was born a slave and served in both the Mexican and Civil wars.

Swimming a Required Study.— It is said that hereafter Amherst College is to require its students to qualify in swimming. This rule was made at the recent dedication of the Pratt Sanatorium. This idea appears a little remote from the ordinary conception of an academic education, but its usefulness, if the plan can be carried out, is not open to question.

Blindness in Massachusetts. — According to the recently issued special Bulletin on Blindness in Massachusetts, from the Bureau of Statistics of Labor, it appears that on May 1, 1905, the entire number of blind persons in the state was 3,676. Of these 65.4% were native born. In these statistics the term " blindness " is used to include " persons, who by the aid of glasses, are yet unable to distinguish form or color, to count the fingers on the hand within one foot from the eyes, or to read writing or ordinary print."

A Dinner to Dr. Henry P. Bowditch and Dr. J. Collins Warren. — On Tuesday evening, Sept. 25, a dinner was given by their colleagues of the Harvard medical faculty at the Algonquin Club to Dr. Henry P. Bowditch and Dr. J. Collins Warren, in recognition of their services to the new Harvard Medical School and to the cause of medical education in general. President Eliot of Harvard University presided at the dinner.

Honorary Degrees at the Dedication of the New Buildings of the Harvard Medical School. — At the academic session of the exercises of dedication of the new buildings of the Harvard Medical School, held in Sanders Theatre, Cambridge, Sept. 26, President Eliot of the University conferred the following honorary degrees: Doctor of Arts, Mr. Charles A. Coolidge, Boston, architect of the new buildings; Doctor of Science, Dr. Simon Flexner, of New York; Doctors of Laws, Dr. John Collins Warren, Boston; Dr. H. P. Bowditch, Boston; Dr. Don José Ramos, Mexico; Dr. Franz Keibel, Freiburg, Germany; Dr. C. S. Sherrington, Liverpool and London; Dr. Francis J. Shepherd, Montreal; Sir Thomas Barlow, London, and Abraham Jacobi, New York.

LIST OF DELEGATES, DEDICATION OF HARVARD MEDICAL SCHOOL BUILDINGS. — Prof. Dudley P. Allen, Western Reserve University; Prof. Sir Thomas Barlow, University College, London; Dr. W. L. Bierring, University of Iowa; Prof. Cav. Giovanni Calderini, Bologna; Prof. William H. Carmalt, Yale University; Prof. Gaylord P. Clark, Syracuse University; Dr. N. S. Davis, Northwestern University; Mon. le Dr. Marc Dupour, Lausanne; Dr. William Ewart, St. George's Hospital Medical School, London; Prof. Egbert Le Fevre, University and Bellevue Hospital Medical College; Dr. F. Forchheimer, University of Cincinnati; Dr. Charles H. Frazier, University of Pennsylvania; Prof. John Glaister, University of Glasgow; Prof. J. T. Halsey, Tulane University; Prof. J. W. Holland, Jefferson Medical College, Philadelphia; Prof. J. N. Hyde, Rush Medical College; Prof. Franz Keibel, Freiburg; Prof. A. F. A. King, University of Vermont; Prof. George M. Kober, Georgetown University; Dr. S. W. Lambert, Columbia University; Prof. R. F. C. Leith, University of Birmingham, England; Prof. Harvey Littlejohn, University of Edinburgh; Dr. George N. Miller, New York Post-Graduate Medical School; Prof. C. S. Minot, Royal Instituto di Studi Superiori Firenze Italien; Dr. Alfred Mitchell, Medical School of Maine; Prof. J. F. Y. Paine, University of Texas; Prof. Reuben Peterson, University of Michigan; Dr. William M. Polk, Cornell Medical College; Sr. Dr. Don Jose Ramos, Mexico; Dr. Joseph H. Raymond, Long Island College Hospital; Prof. Sherrington, University of Liverpool; Dr. Robert J. Terry, Washington University, St. Louis; Dr. Samuel B. Ward, Albany Medical College; Dr. F. D. Weis, Tulane; Dr. Harold Williams, Tufts College; Dr. H. C. Yarrow, George Washington University.

The following institutions have sent congratulations and good wishes: University of Christiania, Middlesex Hospital Medical School, University of Tübingen; University of Liege, also engrossed parchment; University of Giessen, University of Bonn, University of Heidelberg, University of Strassburg, University of Aberdeen, London Hospital Medical College, Lister Institute of Preventive Medicine, Imperial Institut für Infectionskrankheiten, University of Leipzig, University of Greifswald, University of Kiel.

SITE FOR BOSTON TUBERCULOSIS HOSPITAL. — It is reported that the trustees of the tuberculosis hospital have decided upon the Conness estate in Mattapan, near Boston, as the site for the hospital authorized in 1901. One hundred and fifty thousand dollars are available for the purposes of this hospital. The trustees of this department of the city's work were appointed by Mayor Fitzgerald early in the spring and came into official existence May 1. Many offers of land were made, and the difficulty of deciding upon a location has been correspondingly great. After careful consideration, and under expert advice, the Conness estate has been accepted. Plans for the new hospital have been submitted and it is hoped that the work on the institution may be begun this winter. The land comprises between fifty and sixty acres sloping towards the south, and various buildings now standing upon it will prove useful for the purposes of the institution.

NEW YORK.

A CENTENARIAN. — Mrs. Mary Lovett, believed to be the oldest resident of Westchester County, New York, died on Sept. 9 at her home, the ancient Lovett homestead in Tarrytown on the Hudson, at the age of one hundred and two years. She came of good old Colonial stock, her grandfather, Cornelius Jones, having served with distinction with the patriot army in the Revolutionary War. She was born in Westchester County on March 10, 1804.

A CASE OF TYPHUS FEVER ON SHIPBOARD. — When the White Star Liner "Cretic" arrived at quarantine on Sept. 19 the surgeon of the ship reported that a child in the steerage had died in mid-ocean from what he believed to be typhus fever. In consequence, the vessel was thoroughly fumigated, and the 250 steerage passengers who had been in the same compartment as the child were removed to Hoffman Island for observation. No other cases of the disease appear to have developed.

A HEALTHY CAMP FOR TROOPS. — General Frederick D. Grant, who has just returned to the headquarters of the Department of the East, on Governor's Island, reports that among the larger body of troops encamped at Mount Gretna, Penn., where he was in command, there was not a single case of illness in the camp during the entire summer; he expresses the opinion that the results obtained there warrant the conclusion that the problem of a healthy permanent camp has been solved.

Appointment of Dr. Thomas A. Story.— Dr. Thomas A. Story, a Harvard graduate, and recently physical instructor of Leland Stanford University, has been appointed head of the physical training department of the College of the City of New York, which commenced its term on Sept. 17 in the fine new buildings, just finished, on Washington Heights. In the Preparatory Department this year there are three thousand students, including the incoming graduates of the public schools, and the present senior class is the first class which, when graduated, will have completed the full seven years' course now provided in the curriculum of the college.

Medical Commission in the Patrick Case. — The petition urging Governor Higgins to appoint an impartial medical commission in the case of Albert T. Patrick, reference to which was recently made in the Journal, was presented to the Governor on Sept. 20. It was signed by some 3,500 physicians of the state of New York, representing 551 cities and towns, and doubtless the number would have been still larger if the movement to secure their names had not been undertaken in the middle of summer. The signers include 860 physicians of Manhattan and the Bronx, 324 of Brooklyn, 114 of Buffalo, 75 of Rochester, 64 of Syracuse, 32 of Troy, 20 of Elmira and 16 of Albany. In commenting on the matter the Governor is reported as saying: "This is a case of very great importance, involving issues beyond the simple question of one man's life, and I must have the various legal aspects of it carefully examined before I can tell what is my power and my duty."

An Unusual Case of Resuscitation. — A remarkable case of resuscitation was recently related in a court at Yonkers, Westchester County by the surgeons of St. Joseph's Hospital, in that city. The complainant in the suit on trial was Edward McElroen, who about two months ago was struck on the head with a wrench in a street row in Yonkers, suffering a compound fracture of the skull. While on the operating table at St. Joseph's Hospital he seemingly died. The heart and respiration apparently stopped entirely, and all efforts to revive the man proved unavailing. He was then pronounced dead, and an orderly had been summoned to remove the body, when a nurse, passing, noticed and called attention to a tremor in the muscles of the patient's legs. A renewed examination showed a slight tremor also in the chest muscles, and at once an intravenous injection of normal salt solution was made, and artificial respiration resumed. A renewal of the cardiac and respiratory movements resulted, and, after two days of faithful work on the part of the hospital staff, consciousness returned, and the patient was in fairly good condition. He remained under treatment in the hospital for seven weeks, and was then discharged.

Award of Enno Saunders Prize. — At the annual meeting of the Association of Military Surgeons of the United States, which was held in Buffalo, N. Y., on Sept. 11 and 12, it was announced that the Enno Saunders prize had been awarded to Major Pilcher of Brooklyn, N. Y., for his essay on "The Training of the Medical Officer of the State Forces to Best Qualify Him for Local Service and for Mobilization with National Troops." In this essay Dr. Pilcher states that the military portion of the work of the medical officer of the state forces is more of a novelty to the newly commissioned surgeon than the professional work of the specialty. "He should remember that he is now a military man, and should not fail to qualify himself to properly fill the new position. He must learn to command men; not only those of his hospital corps, but the sick. The title of 'Doc' or 'Doctor' must be absolutely rejected, and he and his men must learn that the military salute and proper deference to rank are essential features of military service." In speaking of the paramount importance of prophylaxis in camp and field, the essayist says: "Even more important than therapeusis is prophylaxis, a feature of medical work which has but little vogue in civil life, but which is of vital importance in army service. Here lies, perhaps, the most difficult duty of the National Guard surgeon. Accustomed in the work of civil life to wait for an invitation before extending the healing hand, it goes vastly against the grain of the civilian practitioner recently injected into military life to publicly foist his sanitary opinions upon his comrades or superiors. A single bit of neglect will open the door for a thousand misfortunes. The most important study, then, of the physician to whom the duties of military service may come is military hygiene and sanitation."

Obituary.

DWIGHT M. CLAPP, D.M.D.

DR. DWIGHT M. CLAPP died in Lynn, Mass., Sept. 18, 1906. He had been in failing health for three years past and his death was, therefore, not unexpected. Dr. Clapp was born in Southampton, June 5, 1846. He received his preliminary education at the Westfield Academy, and immediately thereafter began the study of dentistry. He later went abroad to perfect himself in his chosen work. Returning to the United States he began the practice of dentistry in Boston, where he remained during his entire life. His capacity was at once recognized, and in 1882 he received the degree of D.M.D. from the Harvard Dental School and likewise was offered an instructorship in operative dentistry. In 1890 he was made clinical lecturer in operative dentistry after a period of seven years in which he was not connected with the school. This position he held until his death. In 1899 he became a member of the administrative board of the Harvard Dental School. Dr. Clapp wrote many papers on dental subjects, and was at various times an officer of the prominent odontological societies in this state. He also held membership in the National Dental Association and many others of similar character. Dr. Clapp's interests, however, extended far beyond his professional work. He was a member of the Boston Art Club, the University Club, the Appalachian Club, the Megantic Fish and Game Club, and was an ardent lover of everything pertaining to nature. His wife and one child survive him, a son who has likewise won for himself an enviable place in the profession of dentistry.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPT. 1, 1906

1. *The Distribution of Afferent Nerves in the Skin.* PROF. MAX VON FREY, Wurzburg, Germany.
2. *A Résumé of the Therapeutic Field for the Past Year.* THOMAS F. REILLY, M.D., New York City.
3. *Health Inspection as Applied to the Individual.* L. F. BISHOP, A.M., M.D., New York.
4. *Some Truths About Sleep.* N. BRIDGE, M.D., Los Angeles, Cal.
5. *The Treatment of Thyroidism by a Specific Serum.* J. ROGERS, M.D., New York.
6. *A Serum Having Therapeutic Value in the Treatment of Exophthalmic Goiter.* S. P. BEEBE, M.D., Ph.D., New York.
7. *The Surgical Treatment of Exophthalmic Goiter.* F. J. SHEPHERD, M.D., LL.D., Montreal.
8. *A Study of Convergence and Its Defects, Including an Analysis of Four Hundred and Forty-one Cases of Exophoria.* W. REBER, M.D., Philadelphia.
9. *Cerebral Decompression. A Palliative Operation in the Treatment of Tumors of the Brain.* W. G. SPILLER, M.D., and C. H. FRAZIER, M.D., Philadelphia (to be continued).
10. *Pharmacopeial or Proprietary Preparations. Which?* J. RITTER, Ph.G., M.D., Chicago.

1. *The Distribution of Afferent Nerves of the Skin.* — Prof. Max von Frey, in his address before the Section on Pathology and Physiology of the American Medical Association discusses the physiology of the afferent cutaneous nerves and gives a brief sketch of the researches which have divided the sensory functions of the skin under four heads, — the sensations of warmth, cold, touch and pain. The main body of the address is devoted to showing that the observations of Head ("The Afferent Nervous System from a New Aspect," Brain, 1906, vol. ii, p. 99) can be explained without conflict with theories previously held, and do not necessitate Head's conclusions.

2. *A Summary of the Therapeutic Field for the Past Year.* — Reilly mentions especially the following facts: Ethyl chlorid anesthesia is rapidly replacing the more cumbrous nitrous acid for anesthesia, and is apparently quite as safe. Scopolamin-morphin anesthesia is condemned. Treatment of syphilis by hypodermic injections of mercury is advocated. The intravenous use of digitalis preparations has obtained recognition in Germany. Moebius serum has been established as a measure of practical value in treatment of exophthalmic goiter; the serum of Beebe and Rogers also promises well. Various untoward effects of suprarenal extract have been observed. A tendency to use large doses of antitoxin in diphtheria is manifest. It has been proved of value in post-diphtheritic paralysis. Hoffa speaks encouragingly of Marmorek's antitubercular serum in bone and joint tuberculosis, given *per rectum*. More general use of pharmacopeial prescriptions is urged, and fuller co-operation with the druggist to produce more pleasant preparations.

5. *The Treatment of Thyroidism by a Specific Serum.* — Rogers describes in careful detail the clinical use of the serum whose preparation is described by Beebe in the next article. Ninety cases have been treated, of which 23 have been cured of all symptoms of thyroidism, 52 have been more or less improved, 11 have failed to improve (as yet) and 4 have died. The four deaths occurred evidently in spite of treatment rather than in any way as a result of the serum. The types of thyroidism encountered and the effects of the serum in their treatment are fully described, together with methods of administration and guides for dosage of the serum. Reports of four cases only are included. For details of all the histories the reader is referred to the *Transactions* of the Association of American Physicians of 1906.

6. *A Serum Having Therapeutic Value in the Treatment of Exophthalmic Goiter.* — Beebe gives the method of preparation of the sera used in the treatment described in the preceding article. At first the thyroids from two fatal cases of exophthalmic goiter were used, but later normal human thyroids, obtained at autopsy, were employed. The glands are finely divided and the nucleoproteids and globulin isolated. These substances in solution are injected intraperitoneally into animals from which the serum is later obtained. Sheep and Belgian hares have proved best adapted to the purpose. The strength of the serum when ready for use can be to some extent determined by measuring its power of agglutinating emulsions of thyroid cells. The beneficial action of the serum is believed to be due to cytotoxins and not to antitoxins. In other words the serum is thought to act not so much by neutralizing poisonous products, as by preventing their formation by action on the gland cells.

SEPT. 8, 1906.

1. *The Opportunity of the Pediatrician.* T. M. ROTCH, M.D.
2. *Postcritical Fever and Other Sequelæ of Croupous Pneumonia.* J. E. TALLEY, M.D., Philadelphia.
3. *Incurable Eyestrain.* G. M. GOULD, M.D., Philadelphia.
4. *Nasal Disease and Neuralgia.* S. S. SOMERS, M.D., Philadelphia.
5. *Cerebral Decompression* (Continued).
6. *Femoral Herniotomy.* A. J. OCHSNER, B.S., F.R.M.S., M.D., Chicago.
7. *Five Years' Experience with an Original Filigree Intended to Prevent and to Cure Abdominal Herniæ.* W. BARTLETT, M.D., St. Louis, Mo.
8. *Heredity and Environment as Factors in the Life and Diseases of Children.* C. F. WAHRER, M.D., Fort Madison, Iowa.
9. *A Further Contribution to the Study of Stools of Starch-fed Infants.* C. G. KERLEY, M.D., W. C. CAMPBELL, M.D., and H. N. MASON, M.D., New York.

10. *The Pathology of Bile.* W. Salant, M.D., New York.
11. *Tuberculosis of an Adenomyoma of the Uterus, with a Pathologic Report.* J. L. Archambault, M.D., Cohoes, and R. M. Pearce, M.D., Albany, N. Y.
12. *Ocular Injuries from Foreign Bodies.* W. M. Sweet, M.D., Philadelphia.

5. *Cerebral Decompression. A Palliative Operation in the Treatment of Tumors of the Brain.* — Spiller and Frazier have collected the results of a large number of authors, in operations to relieve intracranial pressure from brain tumor. To these they add their own observations of fourteen cases. Their conclusions are as follows: (1) Palliative operations should be performed early in every case in which symptoms of brain tumor are pronounced, and before optic neuritis has advanced far, especially when syphilis is improbable or antisyphilitic treatment has been employed. (2) Partial removal of a tumor, especially of a glioma, is a questionable procedure. (3) Palliative operation does not cause atrophy of a brain tumor, and probably does not arrest its growth; on the other hand, it probably does not hasten its growth. (4) Palliative operation is not to take the place of a radical operation when the latter can be performed without great risk to the patient. (5) In some cases the symptoms of brain tumor disappear almost entirely for a long time or permanently after a palliative operation. This result is obtained either by relief of intracranial pressure or by removal of some lesion (meningitis serosa, etc.) other than brain tumor, yet causing the symptoms of tumor.

6. *Femoral Herniotomy.* — Ochsner calls attention to the fact that in operations upon femoral hernias methods still differ greatly. Earlier operators simply ligated and removed the sac, and sutured the skin, with perfectly satisfactory results. Since the introduction of the Bassini operation for inguinal hernia, however, attempts to treat femoral hernias by similar methods have led to a considerable number of recurrences. Following the principle that it is practically impossible to keep a circular opening in any part of the body from closing spontaneously unless it be lined with a mucous or serous membrane, the author has operated in much the same way as Socin in 1879. The hernial sac is carefully dissected out, quite up into the peritoneal cavity, beyond the inner surface of the femoral ring. It is ligated high up and cut off, so as to permit the stump to withdraw within the peritoneal cavity. Removing all the fat contained in the femoral canal, and simply closing the skin wound, completes the operation. This method can be used in all cases except where the opening is not circular and regular as in occasional traumatic hernia, congenital deformity or after cutting the ring to reduce a strangulated hernia. In thirty cases that have been followed from one to fourteen years there have been no recurrences.

9. *A Further Contribution to the Study of Stools of Starch-fed Infants.* — The authors have examined the stools of sixty infants to which barley water had been given. Of these 60 infants, 41 showed good starch capacity.

10. *The Pathology of Bile.* — Salant has collected from numerous sources many interesting observations as to the behavior of biliary secretions under different conditions. In fevers the flow of bile from fistulas is greatly diminished in man and in animals. Diminution in the organic constituents and total absence of color have been observed in such cases. A diminution in the flow of bile probably occurs in malignant disease. Blood-pigment has been found in bile after poisoning by potassium chlorate and other substances. Glucose has been present after injection of phloridzin or of glucose. Under certain pathologic conditions albumin has been observed.

12. *Ocular Injuries from Foreign Bodies.* — Sweet analyses four hundred and twenty cases, giving treatment and results, especially recommending radiographic examination.

Sept. 15, 1906.

1. *The Art of Medicine.* E. Hornibrook, M.D., Cherokee, Iowa.
2. *The Dietetics of Obesity.* A. C. Croftan, M.D., Chicago.
3. *The Treatment of Progressive Atrophy of the Optic Nerve Due to Acquired Syphilis by Subconjunctival and Intravaginal Injections of Sublimate of Mercury.* C. S. Bull, M.D., New York.
4. *Neoplasms of the Colon. Report of Sixteen Cases.* A. F. Jonas, M.D., Omaha.
5. *The Surgical Conception of Sigmoid Pathology.* H. D. Miles, M.D., Salt Lake City.
6. *Treatment of Ulcer of the Stomach, with a Record of Cases.* H. F. Hewes, M.D., Boston.
7. *Etiology and Diagnosis of Gastric and Duodenal Ulcer.* F. Billings, M.D., Chicago.
8. *Gastric and Duodenal Ulcers. When Do They Require Surgical Treatment and What Procedures Are Necessary?* W. L. Rodman, M.D., Philadelphia.
9. *The Medical Treatment of Duodenal and Gastric Ulcer.* A. Lambert, M.D., New York.
10. *Cerebral Decompression.* (Continued.)

2. *The Dietetics of Obesity.* — The methods, for reducing obesity are largely dietetic, with the regulation of muscular exercise second in importance. In diet too much attention has been given to special articles of food. In general, carbohydrates and fats should be reduced and not albumins; but this is more because reduction of albumins is dangerous than because they form less fat. In general, any article of diet can form fat according to its caloric value. Croftan first determines approximately what would be the caloric requirement of the individual if he were not obese, and puts him on a diet calculated to contain exactly this number of calories. If he fails to lose weight on this diet he begins on a reduction cure, arranged in three degrees; the first containing four fifths, the second three fifths and the third two fifths of this normal caloric requirement. At least the minimum normal requirement of albumin must be provided — 60 to 80 gm. a day which corresponds approximately to 400 to 600 gm. of lean meat; more than this can be given according to the tastes and habits of the patient, counting only the caloric value. For the remainder of the diet bulky carbohydrates of low caloric value are recommended, rather than fats. Three meals a day are given with two or three small meals between, of bouillon, coffee or fruit. The total intake of liquids should be reduced to 1 to 1½ liters per twenty-four hours. Special articles of diet with their advantages and disadvantages are discussed.

4. *Neoplasms of the Colon.* — Sixteen cases are reported, all but one malignant. There was an operative mortality of but three cases, but recurrences were many and none can be said to be beyond danger of recurrence. Pathology, symptoms and diagnosis of such cases are discussed.

5. *The Surgical Conception of Sigmoid Pathology.* — The author expresses the opinion that ulcer of the sigmoid is of very common occurrence. His evidence, is however, hardly conclusive.

6. *Treatment of Ulcer of the Stomach.* — The relative values of medical and of surgical treatment as shown in the author's cases are summarized as follows: In cases of simple ulcer medical treatment offers an efficient though not an absolutely certain means of cure. Surgical treatment of simple ulcer is capable of providing an efficient means of cure, but the number of deaths which have occurred as the result of operation render the total results inferior to those obtained under medical treatment. In cases of chronic ulcer with disturbance of the ability of the stomach to empty its contents, medical treatment may maintain the strength and comfort of the patient while it is continued, but rarely effects a permanent cure. Surgical treatment, on the other hand, gives excellent results as regards permanent cures and, in spite of a certain number of recurrences and of deaths from operation, is to be advised when once the diagnosis is definitely determined. Statistics of cases personally observed by the author are given. Cases of simple ulcer of the stomach treated medically numbered 51. The immediate results were: Complete relief 48, failure of relief 2, died 1 (from hemorrhage). The after-results in 49 cases were: Cured 31 (63%), recurrence 18 (36%), died 1 (2%). In 16 of these cases which followed treatment for four months 13 were permanently cured (80%). Surgical treatment in 13 cases of simple ulcer resulted as follows: Cured 6 (46%), not relieved 3 (23%), died 4 (30%). In chronic ulcer with gastrectasis, of 20 cases treated medically there were: Cured 0; relieved 17 (85%); not relieved 3 (15%); died 0. Of 14 cases treated surgically there were: Cured 9 (64%); recurred or failed of relief 3 (28%); died shortly after operation 2 (14%) One case is reported where suspicion of malignancy caused

operation to be advised; a beginning carcinoma was found and removed. The patient has now been in perfect health for two years.

7. *Etiology and Diagnosis of Gastric and Duodenal Ulcer.* This paper is a brief description of the classical symptoms and signs of ulcer with the pathology, etiology and differential diagnosis.

8. *Gastric and Duodenal Ulcers. When Do They Require Surgical Treatment and What Procedures are Necessary?* Operation is required in perforation or subphrenic abscess, although unquestionable cases of spontaneous recovery have occurred. Most surgeons do not favor excision of the ulcer; a few Lembert sutures with an omental graft are sufficient. The contaminated areas of the abdomen should be mopped or washed out and drained. Operation is also advisable whenever more than one hemorrhage has occurred as soon as the patient has sufficiently recovered from shock. Excision of the ulcer is the most satisfactory method if practicable. The author disputes the reliability of gastro-enterostomy as a measure to relieve hemorrhage. In the treatment of uncomplicated ulcer, acute cases in young women should be treated by medical means; but in chronic ulcer medical treatment should not be persisted in longer than four weeks. As an operation of choice in such cases the author recommends pylorectomy.

9. *The Medical Treatment of Duodenal and Gastric Ulcer.* — The course of treatment is described as follows: (1) Rest in bed, from a week or two to a much longer period, until the pain and tenderness following the ingestion of a mild but varied diet shall have disappeared. (2) Rectal feeding for three to ten days; only ice and small amounts of water being allowed by mouth. Lavage of the colon is given each morning. Beginning one hour later, nutrient enemata, not over four ounces each in amount, composed of eggs, milk, meat broths or meat powders, all peptonized, are given at four-hour intervals three or four times in the day. Gastric feeding should be begun before the rectum becomes intolerant — first, small amounts of peptonized milk, then larger amounts at frequent intervals, until two quarts are taken in twenty-four hours. Then peptonization may be reduced and gruels added. During the fourth week may be added crust-free bread, butter and soft-boiled eggs; in the fifth week potatoes, rice, macaroni, custards and chicken; in the sixth week, beef, mutton, vegetables, cooked fruits and simple puddings. Lenhartz's protein diet is summarized. To prevent relapse after recovery, patients must avoid overdistention of the stomach and abstain from alcohol and irritating foods. Fleiner's bismuth treatment and Cohnheim's olive-oil cure are described, also treatment by silver nitrate and by iron perchloride. For pain, nausea, etc., various palliative measures are suggested. For hemorrhage, rest, by morphin, if necessary, ice, ergot, turpentine in white of egg, and adrenalin solution are recommended. Repeated little unceasing hemorrhages demand early surgical interference. A single profuse hemorrhage is not a surgical indication, but if it is repeated operation may be indicated, if the pulse and general condition of the patient justify it. In chronic ulcer surgery is indicated when medical treatment fails to give relief.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

SEPTEMBER, 1906.

1. *The Results of Operative Treatment of Varicose Veins of the Leg by the Methods of Trendelenburg and Schede.* R. T. MILLER, JR., M.D.
2. *Blood Pressure Changes in Cheyne-Stokes Respiration.* J. A. E. EYSTER, M.D.
3. *Observations on a Case of Palpitation of the Heart.* A. D. HIRSCHFELDER, M.D.
4. *The Irish School of Medicine.* J. J. WALSH, M.D., PH.D.
5. *John Huxham of Devonshire* (1692-1768). W. J. VOGELER, M.D.
6. *Popular Medicine in the Eighteenth Century.* E. C. HILL, M.D.
7. *The American Hookworm in Guam and China.* C. W. STILES, PH.D.
8. *Sahli's Desmoid Reaction in Gastric Diagnosis.* T. R. BOGGS, B.SC., M.D

1. *The Results of Operative Treatment of Varicose Veins of the Leg by the Methods of Trendelenberg and Schede.* — Miller compares the results obtained by these two operations. By the Trendelenberg method, or ligation of the long saphenous vein, of 41 cases, 32 or 78%, were cured or greatly improved. By the Schede method, of partial or complete circumcision of the leg with division, between ligatures, of all superficial veins encountered, out of 9 cases only 33% were cured or greatly improved. Of 5 cases treated by Madelung's operation or excision of veins, none could be traced. The author questions whether this method has advantages over that of Trendelenberg sufficient to offset the increased risk incurred.

2. *Blood Pressure Changes in Cheyne-Stokes Respiration.* — Eyster has observed that cases of Cheyne-Stokes respiration may be divided into two classes, according to the variations of blood pressure in the periods of apnea and of dyspnea. In the first group he places those cases in which there is a rise of blood pressure and an increase in pulse rate with each period of deep respiration. In the second group he places those cases in which there is a fall of blood pressure and a slowing of the pulse rate with each period of respiraton. From the autopsy findings in cases of the first group and from animal experiments he comes to the conclusion that cases of the first class are probably always associated with increased intracranial tension. The second class of cases is still under investigation.

8. *Sahli's Desmoid Reaction in Gastric Diagnosis.* — Boggs summarizes Sahli's method and gives his own results in thirty-four cases. The "desmoid pill" consists of methylene blue .05 gm. or iodoform 0.1 gm. inclosed in thin rubber dam, and tied with No. 00 raw catgut previously soaked in water. The edges of the rubber must not cohere, and the pill must be water-tight and sink instantly in water. This pill is given either with or just after the mid-day meal, and the urine is collected five, seven and eighteen to twenty hours later, to be tested for methylene blue or iodoform. The method is based on the assumption that catgut in the raw state is soluble in the peptic secretions of the stomach, but not in pancreatic juice. This the author has proved to be the case in experiments *in vitro.* Appearance of the indicator in the urine proves that the catgut has been dissolved, and consequently that the gastric juice is active. In 12 normal persons tested, all results were positive. In 34 cases where gastric abnormality existed, those where free HCl was present after test meal all gave a positive reaction. In some where free HCl was absent but the desmoid test positive the absence of free HCl was later found to be inconstant. Of 9 cases of cancer of the stomach the test was negative in 8 and in the one exception there is possibility of error. In conclusion, the author regards the principal value of the reaction to be as a test for free HCl. In his opinion it cannot replace the test meal, but is a useful single test for the presence of gastric digestion.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 36.

6 SEPT.

1. LEO, H.: *The Treatment of Hemorrhages of the Gastro-Intestinal Tract.*
2. SCHLESINGER, E., and HOLST, F.: *A Comparison of the Methods of Detecting Small Amounts of Blood in the Feces, with a New Modification of the Benzidin Test.*
3. RINNE, F.: *Operative Treatment of Epilepsy.*
4. SOMMER, and FÜRSTENAU, R.: *The Apparent Charging of the Human Body with Electricity.*
5. BENCE, J.: *Three Cases of Plethora (Polyglobulie)* (Continued article).
6. GREEF and CLAUSEN: *Spirocheta Pallida in Experimental Interstitial Keratitis.*
7. KATZ, L.: *Local Anesthesia of the Upper Respiratory Passages and the Ear.*
8. CASSEL: *On Sleep in Childhood.*
9. SKLAREK: *Santyl in the Treatment of Gonorrhea.*

1. The first indication in all such hemorrhages is absolute rest in bed. If cardiac weakness and anemia of the brain are present (small, rapid pulse, pallor, cold extremities, etc.) the patient should be placed with the head lower than the feet, and the legs should be bandaged. If these measures are not sufficient, hypodermic injections of camphor and infusions of salt solution under the skin should be tried, or, less preferably, rectal injections of salt solution. He recommends further the application of ice to the abdomen and over the heart, and the use of ergotin

(0.1 g.). In profuse hemorrhages from the esophagus or stomach, nothing but ice, or, perhaps, gelatine, should be given by mouth and rectal feeding should be resorted to. If the hemorrhage comes from an ulcer of the stomach, lavage is not advisable, except in the case of motor insufficiency with small hemorrhages. Surgical measures are contra-indicated in profuse hemorrhage; gastro-enterostomy is efficacious in cases with repeated hemorrhages, often leading to cure. In typhoid hemorrhages a cold liquid diet, opium and ferric chloride are advised, with avoidance of stimulants, if possible. The baths should be omitted. Hemorrhages from hemorrhoids, if repeated, require operative treatment; in plethoric persons, however, they are of little consequence.

2. The writers found Schumm's modification of the guaiac test (a complicated method) more reliable than the aloin test; the latter, however, proved superior to the guaiac test as commonly carried out. The benzidin test, in the form recommended by Schumm, showed itself unreliable for clinical purposes, a positive reaction being obtained as late as the tenth day of a diet free from meat. They propose the following modification of the benzoidin test, as superior to any form of the guaiac or aloin tests: A piece of feces the size of a pea is stirred up in one fifth test tube of water, and is then heated to the boiling point, in order to destroy any ferments which may be present. The reagent employed consists of ten drops of an approximately saturated solution of benzidin in glacial acetic acid (freshly prepared) mixed with 3 cc. of a 3% solution of peroxide of hydrogen. One to three drops of the diluted feces are added to the reagent, whereupon, if blood is present, a fine green or blue color appears within two minutes, and changes in about ten minutes to a dirty reddish violet. If blood is absent, the liquid remains yellowish brown. The benzidin test in this form was more delicate than the guaiac and aloin tests, but could not be obtained after three days of a diet free from meat.

3. Rinne recommends operation in those cases of idiopathic epilepsy in which the convulsive movements are localized at the beginning of the seizure. The corresponding part of the cortex should be ascertained at the operation by means of Faradic stimulation, and then excised. Demonstration of such a case, with very marked permanent improvement after operation.

6. The writers produced keratitis in monkeys and rabbits by the inoculation of syphilitic material (inguinal glands). They found numerous spirochetæ in the early stages, while the cornea was still clear; later no spirochetæ were present. The keratitis resembled the interstitial keratitis of hereditary syphilis in man. They were able also to produce a syphilitic papule of the iris resembling that found in man.

7. An investigation of the merits of the new substitutes for cocain, alypin and novocain, Katz found alypin superior to novocain when used alone, producing more complete anesthesia. For use in connection with adrenalin novocain proved the better, being accompanied by more complete ischemia. Alypin was especially valuable for anesthia of the larynx and membrana tympani. Both have the great advantages over cocain, that they are only one sixth as poisonous, and that they can be easily sterilized.

8. The most frequent causes of disturbed sleep in childhood are neurasthenia and adenoids. The treatment requires a careful regulation of the details of the child's daily life. The bedroom should be quiet and dark, except in cases of pavor nocturnus and somnambulism, where a light in the room is often of great service in producing quiet sleep. If such simple measures are insufficient, hydrotheropy, in the form of the warm bath or the wet pack or rub-down, should be tried. Hypnotics are to be avoided.

9. Santyl is a synthetic compound of santalol, the principal ingredient of oil of sandal wood. It is tasteless and produces no untoward symptoms. S. obtained good results with santyl, especially in posterior urethritis.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 36

1 SEPT., 1906.

1. KRAUSE P.. *Lesions of Internal Organs Due to Roentgen Rays, with Prophylaxis.*

2. MACHOL, A.: *The Technique of the Use of Screens in Roentgenoscopy.*

3. STRASBURGER, J.: *On the Diagnosis of Aortic Aneurism-*

4. HESS, O.: *The Diaphragmatic Reflex and the Innervation of the Diaphragm.*

5. WENZEL, F.: *Witzel's Amputation of the Rectum with Preservation of the External Sphincter.*

6. EVELT, W.: *Mesenteric Cysts (with report of a case).*

7. SITTLER, P.: *Yeast in the Treatment of Gastro-Enteritis in Children.*

8. KUERBITZ. *A Case of Angio-Neurotic Edema ("Akute umschriebene Œdem") in Tabes.*

9. SCHUETTE, P.: *A New Form of Hysteria in School Children.*

10. LANGE, F.: *A Test for Aceton.*

11. TROMP, F.: *Extravesical Separator of Urine according to Heusner.*

12. GEISSLER, O.: *An Instrument for Pubiotomy.*

13. BAUM, H.: *Seven Cases of Ileo-Cecal Tuberculosis Treated by Operation* (continued from preceding number).

1. Review of the literature; In animals, prolonged exposure to the Roentgen rays has produced lesions of the blood, bone-marrow, spleen, lymph-glands, ovaries and testicles. Sterility has resulted both in man and animals, but without impotence. The effect on the blood is the destruction of leucocytes, with the setting free of a "leucotoxin" which is also destructive to leucocytes. Autolysis and catabolism are both increased. Description of appliances to protect the investigator while at work.

3. A case of aneurism of the thoracic aorta, with tracings showing retardation of the pulse wave.

4. Under the name of "diaphragmatic reflex" Hess describes a new reflex which may be called forth by gentle irritation of the nipple. It consists of a sinking in of the epigastrium, with retraction directly backward of the xiphoid process, due to contraction of the sternal portion of the diaphragm. It is found only where the xiphoid is still cartilaginous, that is to say, in children and young people. It is distinguished from the epigastric skin reflex by the retraction of the xiphoid and the fact that it can be elicited from the nipple only. The path of the reflex probably lies in the intercostal nerves, which innervate this portion of the diaphragm, not in the phrenic nerves.

5. Witzel's operation for the radical excision of new growths of the rectum consists of high amputation, avoiding the dangers of resection; sepsis and hemorrhage, and making possible the removal of the portion of the rectum below the tumor, where so-called implantation metastases may occur. Wenzel has modified this method, preserving the external sphincter.

6. Case of enormous mesenteric cyst (15 liters) cured by operation.

7. Sittler obtained good results with yeast in the treatment of gastro-enteritis of children, using "levuretin" in doses of 1.5 to 2.5 g. daily, sometimes alone, sometimes with astringents. Especially cases with foul stools showed prompt improvement.

9. Schuette describes an epidemic of functional tremor among the school-children of Meissen. It affected chiefly girls, and spread by autosuggestion and imitation. The tremor involved first the right and then the left hand, sometimes also the forearms. Treatment: removal from school, rest, hygiene, galvanism and massage to the affected muscles.

13. Baum comes to the following conclusions:

(1) The true tuberculous ileo cecal tremor is a relatively benign, hyperplastic form of primary tuberculosis of the intestine.

(2) The microscopic appearance resembles closely that of the hypertrophic form of lupus, showing few tubercles.

(3) The chief symptoms are those of stenosis.

(4) The best operation is the resection of the ileocecal region in one sitting.

(5) Anastomosis is indicated where resection cannot be carried out, and

(6) Where the peritoneum is also extensively involved, simple laparotomy.

Miscellany.

THE HARVARD MEDICAL SCHOOL — PAST AND PRESENT.

THE history of the Harvard Medical School has been many times written, most recently and completely by Dr Thomas F. Harrington and Dr. James G. Mumford in a work of three volumes. It will, therefore, suffice at this time merely to point out certain landmarks in connection with the development of the school up to the present time.

The Boston Medical Society was founded in 1780 by Drs. John Warren, Samuel Danforth and other physicians. A year or two later Dr. Warren gave a series of lectures on anatomy, but on no distinct foundation. In 1782, however, the corporation of Harvard University requested a report relative to the establishment of a professorship in medicine in connection with the college. This was done, and from it arose the beginning of the Harvard Medical School. Three professorships were founded, one in anatomy and surgery, to which Dr. Warren was appointed, another in the theory and practice of physic, to which Dr. Benjamin Waterhouse was appointed, and a third, held by Dr. Allen Dexter, in chemistry and materia medica. Each of these gentlemen, on receiving his appointment, was obliged to sign a paper in which he declared himself a Christian of the Protestant Communion.

The curriculum as originally organized was brief, being two courses of lectures extending over four months a year. The first class graduated in 1788 with two members, and for twenty-five succeeding years the number graduating never exceeded five. The first lectures were held in the basement of Harvard Hall, Cambridge, but in 1783, a year after the formal opening of the school, Holden Chapel in the college yard in Cambridge was used for purposes of instruction. In 1810 a building, which is now 400 Washington Street, Boston, became the home of the school, and from that time on the instruction has been entirely given within the limits of the city. The removal from Cambridge to Boston was itself a stimulus to the growth of the school, inasmuch as clinical material was much more available and the difficulties and hardships of a journey to Cambridge by the professors was obviated. In 1812 Dr. James Jackson was appointed to the professorship of theory and practice, succeeding Dr. Waterhouse. Dr. Jackson was the first to use the Boston almshouse for purposes of instruction. In 1816 the school was again moved to a new building on Mason Street, specially constructed for its uses, made possible in part by a grant from the Massachusetts Legislature. Here it remained for thirty-one years and then moved to the building on North Grove Street, in close proximity to the Massachusetts General Hospital, a building now occupied by the Harvard Dental School. This also was finally outgrown, and in 1883, what was supposed to be at that time almost a final step in progress took place, when the building just vacated at the corner of Boylston and Exeter streets was occupied. In the space of twenty-three years the demands of modern medical education had so far exceeded the ideas of those who constructed the Boylston Street building that it had been completely outgrown and new and ampler quarters became imperative.

In the approximately one hundred and twenty-five years of the life of the school modern medicine has developed, and the development has been essentially along the lines of investigation demanding space and facilities for research. The century past has, therefore, seen a development of the laboratory branches of medicine such as the next century is not likely to reproduce. The result of this in relation to the teaching of medicine has been the necessity not only for facilities for individual research, but also for laboratory space in which students may be taught at first hand facts which hitherto if known at all have been taken on hearsay. This led, seven years ago, to the serious consideration of an entirely new equipment for the Harvard Medical School. Under the leadership of Dr. Henry P. Bowditch and Dr. J. Collins Warren nearly twenty-five acres of land were obtained in Longwood between Longwood Avenue and Francis Street, and shortly thereafter funds were raised in the amount of about five million dollars to build the five structures, the dedication of which has taken place this week. The largest givers were Mr. J. P. Morgan, $1,185,000; Mr. J. D. Rockefeller, $1,000,000; Mrs. C. P. Huntington, $250,000; Mr. James Stillman, $100,000. Many others generously subscribed smaller amounts, making nearly $500,000 in addition. These amounts, in addition to funds voted by the corporation and such permanent funds as the school possessed, assured the erection and maintenance of the new buildings, illustrations of which are given in another part of this JOURNAL. The work of construction has been in the hands of Messrs. Shepley, Rutan and Coolidge, who have admirably fulfilled their trust. Ground was broken in 1902, and now the buildings are practically complete and ready for occupancy.

It is unnecessary at this place to enter into details regarding the brilliant work toward the furtherance of medical education accomplished by the distinguished men who have from the first to the present time held places in the faculty. The names of Bigelow and Holmes stand out conspicuously, but all did their share toward establishing medicine on a higher plane and toward developing the most effective means of instruction. The unswerving interest which President Eliot of Harvard University has taken in the Medical School since the beginning of his administration has done much toward this development. For example, since 1870 the medical school has been an organic part of the university due to the foresight of the President. By this means the school has been placed on a par with other departments of the university and has been given a place in public esteem which could not otherwise have been secured.

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PURE FOOD AND DRUGS ACT.

During the past week the United States Government Commissioners, of which Dr. H. W. Wiley, Chief of the Bureau of Chemistry of the Agricultural Department, is chairman, has been conducting a hearing in New York on the best means of enforcing the Pure Food and Drugs Act, which goes into effect on the first of January. The object of the hearing as explained by Dr. Wiley was to obtain as much information as possible in regard to the subject in question, and to this end the Commission had invited the manufacturers and dealers in foods and drugs to present their views respecting the proposed rules and regulations. The Commission, he said, desired to have the new law go into operation with the least possible disturbance to business and with the least possible inconvenience to the manufacturers and dealers of the country. The Food and Drugs Act had two great purposes in view: First, to prevent the introduction of any injurious substances into food and drug products, or the abstraction from them of any valuable ingredients or properties; and, second, to prevent the misbranding of any package of such products, either as to the nature of the contents of the package or as to the place where made or produced. The two purposes of the law had equal weights, and the first set of offenses was called "adulteration," the second, "misbranding." The Commission declined to hear anything relative to meat and meat products, as these subjects are covered by a special act of Congress. In regard to aniline coloring matters Dr. Edward Gudeman, a Chicago chemist representing a large number of firms, declared that only a small fraction of such dyes were used for coloring purposes. He stated that he had made extensive tests of the forty most commonly used dyes, finding them harmless in the quantities employed, and argued that the burden of proof of the harmfulness of coloring matters should rest with the Department of Agriculture. On the use of borax as a preservative there was an interesting little debate between J. F. Harris and Dr. Wiley, who are ancient opponents on the question of its employment as a food ingredient. Mr. Harris contended that borax was used very generally in England, and that the death-rate there had decreased since it was taken up as a preservative. "Still," said Dr. Wiley, "the death-rate from kidney troubles over there has recently increased 300%."

The Sanitary Code of New York has recently been amended in conformity with the stringent regulations of the Federal Pure Food and Drugs Act, and other additions have also been made to it regarding the sale of such products which Commissioner Darlington believes to be necessary for the protection of the public health. At a meeting of the Board of Health held Sept. 19, it was resolved to commence the enforcement of these provisions at once, and put a stop, as far as possible, to the sale of adulterated or misbranded foods, drugs and liquors in the city. In the Code the term "food" is defined to include "every article of food and every beverage used by man, and all confectionery," and drugs are required to conform to the standards fixed by the United States Pharmacopeia and National Formulary.

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THE NEW BUILDINGS.

We publish in this number illustrations of the new buildings, making detailed description unnecessary. The general arrangement is as follows: An Administration Building closing one end of a quadrangle flanked by four laboratory buildings symmetrically placed, two on each side, all connected by corridors. The Administration Building, as its name implies, contains the offices of the Dean, the faculty room, an alumni room, a students' room and, in addition, an amphitheatre and various lecture rooms. The whole top of this building is taken by the Warren Anatomical Museum, which will here find ample room for expansion. The laboratory buildings, on a slightly lower level than the Administration Building. are essentially alike. Each contains a large amphitheatre in the center of the building over which are rooms for departmental libraries. The wings are occupied by research rooms, small lecture rooms and laboratories arranged with slight variations in the different buildings, but with the same general plan. In most of the laboratory buildings the unit system of construction has been adopted, making each research room ample for one or two persons. Future expansion has been provided so that the architectural design of the buildings need not be materially changed. As one faces the Administration Building, the building next to it on the left is for anatomy and histology, together with departments of operative surgery and comparative anatomy. The building next to this is for pathology and bacteriology. On the right hand side next to the Administration Building is the building for physiology and physiological chemistry and next to this is the building devoted to hygiene, pharmacology, therapeutics, comparative pathology and surgical research. The general arrangement of these buildings may be seen from the plans of the basement and ground floors published in this issue. The appliances for heating, lighting and all other details pertaining to the equipment of such a group of buildings have been most carefully considered and represent the highest type of modern mechanical construction. It is expected later to erect at certain places appropriate fences and gates, which it is hoped classes of the alumni may provide, as has so successfully been done in Cambridge about the Harvard College grounds.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPT. 15, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,523	581	Quincy	6	2
Chicago	548	178	Waltham	11	3
Philadelphia . . .	—	—	Gloucester	6	6
St. Louis	—	—	Pittsfield	7	2
Baltimore	208	56	Brookline	—	—
Cleveland	—	—	North Adams . .	1	0
Buffalo	—	—	Chicopee	4	2
Pittsburg	—	—	Northampton . .	6	1
Cincinnati	—	—	Medford	3	1
Milwaukee	—	—	Beverly	6	3
Washington . . .	—	—	Hyde Park . . .	6	4
Providence . . .	69	16	Newburyport . .	—	—
Boston	219	88	Leominster . . .	5	2
Worcester	52	22	Melrose	6	0
Fall River	40	20	Woburn	7	1
Cambridge	29	12	Marlborough . .	6	0
Lowell	25	11	Westfield	—	—
Lynn	26	8	Peabody	—	—
New Bedford . .	36	19	Revere	12	4
Springfield	13	2	Clinton	1	0
Lawrence	28	14	Attleboro	2	1
Somerville	23	8	Adams	5	2
Holyoke	16	7	Gardner	2	2
Brockton	7	2	Milford	—	—
Malden	6	1	Weymouth . . .	6	4
Salem	7	3	Framingham . .	5	1
Chelsea	12	—	Watertown . . .	2	2
Haverhill	15	6	Plymouth		—
Newton	12	5	Southbridge . . .	3	0
Fitchburg	5	4	Wakefield	1	—
Taunton	—	—	Webster	—	—
Everett	8	3			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 12, 1906.

GEDDINGS, H. D., assistant surgeon-general. Granted leave of absence from Sept. 15 to 30, 1906, both days inclusive. Sept. 12, 1906.

SAWTELLE, H. W., surgeon. Placed on "waiting orders" to date from Sept. 5, 1906. Sept. 11, 1906.

GODFREY, JOHN, surgeon. Directed to report to chairman of board of medical officers, Washington, D. C., Sept. 13, 1906, for physical examination. Sept. 12, 1906.

WERTENBAKER, C. P., surgeon. Granted leave of absence for seven days, from Sept. 15, 1906. Sept. 6, 1906.

WICKES, H. W., past assistant surgeon. Granted two days' leave of absence from Sept. 11, 1906. Sept. 8, 1906.

EARLE, B. H., past assistant surgeon. Relieved from duty at Columbia River Quarantine Station and directed to proceed to Charleston, S. C., and assume command of the Service. Sept. 10, 1906.

SMITH, F. C., assistant surgeon. Granted leave of absence for two days from Sept. 4, 1906, under paragraph 191 of the regulations.

FOGARTY, J. N., acting assistant surgeon. Granted leave of absence for seven days. Sept. 12, 1906.

KIMMET, W. A., acting assistant surgeon. Granted leave of absence for thirty days from Sept. 10, 1906. Sept. 11, 1906.

JACKSON, J. M., JR., acting assistant surgeon. Granted leave of absence for ten days from Aug. 14, 1906. Sept. 6, 1906.

JACKSON, J. M., JR., acting assistant surgeon. Granted leave of absence for four days from Sept. 2, 1906. Sept. 11, 1906.

MCCONNELL, A. P., acting assistant surgeon. Granted four days' leave of absence from Sept. 10, 1906. Sept. 6, 1906.

APPOINTMENTS.

DR. WILLIAM W. MILLER, of Tennessee. Commissioned (recess) as Assistant Surgeon, Public Health and Marine-Hospital Service, Sept. 4, 1906.

DR. ROBERT A. C. WALLENBERG, of Michigan. Commissioned (recess) as Assistant Surgeon, Public Health and Marine-Hospital Service, Sept. 4, 1906.

BOARD CONVENED.

A board of officers was convened to meet at the Bureau, Washington, D. C., Sept. 13, 1906, to determine whether or not the physical condition of Surgeon John Godfrey is such as to entitle him to "waiting orders." Detail for the Board: Assistant Surgeon-General H. D. Geddings, chairman; Assistant Surgeon-General J. M. Eager; Assistant Surgeon-General J. W. Kerr, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 22, 1906.

J. M. MOORE, surgeon. Detached from "Franklin" and ordered to "Newark."

F. M. BOGAN, passed assistant surgeon. Detached from "Marietta," and ordered to New York Hospital for treatment.

J. L. BROWN, assistant surgeon. Ordered to duty with Recruiting Party No. 3.

F. A. RICHARDSON, acting assistant surgeon. Ordered home and await orders.

J. H. IDEN, passed assistant surgeon. Ordered to "Newark."

R. E. HOYT, passed assistant surgeon. Ordered to Naval Academy, Annapolis, Md.

W. E. SCHALLER, I. F. COHEN, J. B. KAUFMAN, M. H. AMES, T. W. RAISON, J. M. MINTER, J. FLINT, A. H. ALLEN, P. E. GARRISON, J. O. DOWNEY, A. H. ROBNETT, R. C. RANSDELL, W. S. KUDER, J. P. HAYNES, H. BUTTS, C. K. WINN, A. MCK. JONES and **H. L. SMITH**, assistant surgeons, and **R. I. LONGABAUGH, W. G. STEADMAN, H. L. DOLLARD, E. P. HUFF, M. C. BAKER, F. D. CHAPPELEAR** and **E. E. CURTIS**, acting assistant surgeons. Ordered to Naval Medical School, Washington.

O. D. NORTON, surgeon. Detached from "Yankee" and ordered to "Missouri."

R. M. KENNEDY, surgeon. Detached from "Missouri" and ordered to Bureau of Medicine and Surgery.

WM. SEAMAN, passed assistant surgeon. Detached from Boston Yard and ordered to "Prairie."

J. F. MURPHY, passed assistant surgeon. Detached from Omaha Recruiting Office and ordered to "Georgia."

W. H. BELL, surgeon. Report to Surgeon-General for special duty.

J. P. DEBRULER, assistant surgeon. Report to Surgeon-General for special duty.

C. C. GRIEVE, assistant surgeon. Ordered to Omaha Navy Recruiting Office.

F. W. S. DEAN, assistant surgeon. Ordered to New York Navy Yard.

J. R. DYKES, assistant surgeon. Detached from New York Yard and ordered to New Orleans Naval Station.

W. H. BLOCK, acting assistant surgeon. Detached from New Orleans Naval Station and ordered to Navy Recruiting Party No. 4.

SOCIETY NOTICE.

MEDICAL SOCIETY OF VIRGINIA. — The thirty-seventh annual session of the Medical Society of Virginia will be held in the hall of the University of Virginia, Charlotteville, Va., Oct. 9 to 12, inclusive, 1906.

RECENT DEATHS.

DR. EDWARD A. WHEELER, of Brooklyn, New York, died after a brief illness on Sept. 19. He was graduated from Bellevue Hospital Medical College in 1879.

DR. S. G. COURTNEY PINCKNEY, a specialist in nervous disorders at the Peach-tree Sanitarium in Atlanta, Ga., died at Grand View, near Nyack, on the Hudson, on Sept. 20. He was born at Grand View on July 14, 1869, and was graduated from the College of Physicians and Surgeons, New York, in 1893. He practised for some time in New York City, but had been a resident of Atlanta for the past five years. For a year he had been in failing health, and a few weeks before his death returned to his old home.

LEONARD DARLING WHITE, M.D., M.M.S.S., died in Uxbridge, Sept. 18, 1906.

Addresses.

ACADEMIC SESSION OF THE DEDICATORY EXERCISES OF THE NEW BUILDINGS OF THE HARVARD MEDICAL SCHOOL, SEPTEMBER 26, 1906.

THE FUTURE OF THE MEDICAL PROFESSION.[*]

BY CHARLES W. ELIOT, LL.D.,
President of Harvard University.

The future occupations and interests of the medical profession are to be in some respects different from those of the past, and they are to be more various. The ordinary physician has for the last hundred years been almost exclusively a man devoted to the treatment of diseases already developed in human bodies or of injuries already incurred. He made his diagnosis, and then sought remedies and a cure. He was the sympathetic and skillful helper of sick or injured persons. Most of the cases that came under his care were cases considered plain as to symptoms, period and accepted treatment. The minority of cases were obscure, and called for unusual knowledge and skill in discerning the seat of the disorder, or the approximate cause of the bodily disturbance. Hence the special value of the experienced consultant, who was ordinarily a man of some peculiar natural gift of body, mind, or temperament, possessing also in high degree the faculty of keen observation, and the habit of eliminating irrelevant considerations, and ultimately finding his way to the accurate, limited inference from the facts before him. Both the ordinary physician and the consultant have already been much helped by the extraordinary process made in medical science during the last thirty years, but they have been helped, chiefly, to a surer recognition of diseases established in human bodies, and to a better treatment of their patients' diseases when recognized.

The physician or surgeon commonly renders a personal service to an individual, sometimes for a pecuniary recompense, but often without money compensation. He is often a trusted adviser in the most intimate family concerns. Births and deaths alike bring the physician into the home. In rendering these services he must be tender, sympathetic, considerate, pure-minded and judicious. There will always be need, crying need, of the physician and surgeon in this sense and for these functions; and whatever else the regular education of the physician provides in the future, it must provide all the elements of the best training for the practising physician who is to treat diseased or crippled human bodies, and give advice about the sudden and the chronic ills which afflict humanity. So much will continue to be demanded of all good medical schools; but much more they must do.

The progress of what we call civilization exposes human beings more and more to the ravages of disease. When savages come in contact with men called civilized, they invariably suffer from diseases new to them. When a rural population crowds into cities, it falls a victim to diseases from which in the country it had been exempt. When hundreds of thousands of people huddle into small areas and create there smoke, dust and noise, they suffer not only from new diseases, but from the exacerbation of diseases not wholly unknown to them in the rural condition. Under such favorable conditions of residence and labor the human body degenerates in many respects, and, losing vigor, becomes in some respects less able to resist the attacks of disease.

Against these bodily evils which result from civilization the physician has thus far struggled chiefly by treating more or less successfully the numerous individuals who are attacked by disease. Doubtless, the treatment of sick and injured persons has substantially improved, but, nevertheless, the death-rate in our cities diminishes slowly, and the heavy economic losses which result from disease and premature death continue. Moreover, the improvement of treatment in hospitals and private practice has been accompanied by a great increase in the cost of treatment, so that the charges upon the community resulting from sickness and injuries have, within the last thirty years, rapidly mounted, and these heavy charges are, after all, incurred for the palliation of evils already suffered, and not for the prevention of such evils. Again, in different parts of the habitable globe, mankind has been exposed for centuries to dangers more or less localized,— in one region to the attacks of venomous reptiles; in another of fierce carnivora; in another to the ravages of flights of insects which devour every green thing; in another to the constant presence of formidable diseases.

For the most part, the human race has learned how to exterminate the offending creatures, or at least, to limit their ravages; and where grave infectious diseases are always present, in greater or smaller degree, or frequently recur, a considerable proportion of the population becomes in some degree immune to them. Mankind is now in face of enemies which are not localized, but which, on the contrary, are carried all over the habitable globe on the ubiquitous routes of travel and commerce. The worst of the new enemies are minute, multitudinous and mysterious, in that their relations and connections are unknown; they infest many of the animals with which man is associated, or pass into man from the animals and plants of which he makes use. Untrammeled dissemination of noxious things has taken the place of centuries-long localization, a localization which sometimes secured checks, antidotes, or immunities. Since then, modern society cannot help incurring new risks; it should seek new defenses. These defenses it may reasonably expect medical education to plan, and public and private expenditure to provide.

If civilized society is to endure under its new exposures and dangers, it is clear that the medical profession must take up with new ardor the work of preventing approaching disease in addition to the work of treating disease arrived. The profession must recognize that health is eminently a social product, just as the psychologists have recognized that the mind of a civilized man is a social product.

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[*] Address [delivered, Sept. 26, 1906, in Sanders Theatre, Cambridge, on the occasion of the dedication of the new buildings of the Harvard Medical School.

When we consider what has already been learned about the production, transmission and prevention of smallpox, cholera, yellow fever, the black death, typhoid fever, diphtheria, anthrax, rabies and tetanus, we cannot resist the conclusion that in the future medical science must include the study of causes and sequences which will carry the student through a large portion of the animal and vegetable kingdoms, and particularly into the habits and habitats of their minute parasitic forms. Systematic medical education must therefore produce a considerable number of men capable of studying in this region the causes of disease, and the ways of interrupting the means of communication, or breaking the chain of sequences, through which at last the germs of disease get a chance to produce their malignant effects within the human body. Considering the great obscurity of the physiological processes which go on within the body and the dense ignorance of mankind concerning the microscopic animal kingdom, it is a great wonder that medical science in its imperfect state has constructed so many effective defenses against disease within the last thirty years. Indeed, we are now using some efficient defensive methods, the real nature of which we but imperfectly understood, as, for instance, the vaccinations against smallpox and hydrophobia. Although we are not yet able absolutely to prevent disease, we are able in many cases to restrict the communication of diseases and to modify their course in the individuals attacked.

The medicine of the future has, therefore, to deal much more extensively than in the past with preventive medicine, or, in other words, with the causes of disease as it attacks society, the community, or the state, rather than the individual. The object in view will be not only to arrest or modify a malady which has appeared in the body of a patient, but, as in the recent case of yellow fever, to learn how the disease is communicated and how to prevent that communication. The study of mitigations, remedies and cures is to continue; but the study of the causes of disease and the means of prevention is to be greatly developed. The function of the nineteenth century physician will continue, and, indeed, will become more effective through a better knowledge of the forces which may be made to act upon his patient, both from within and from without; but another sort of physician will be at work in the twentieth century, preventing the access of epidemics, limiting them when they arrive, defending society against bad food and drink, and reducing to lowest terms the manifold evils which result from the congestion of population.

The explorers and pioneers in medical science must be encouraged to press on their patient work of analyzing all the processes which accompany disease, in order that they may learn their actual sequences. Only through the knowledge of these sequences can real control over disease be certainly gained. And this work will be endless; for civilization involves constant changes in the environment of the human race; and it is on medical science that the race must depend for protecting it from the new dangers which accompany each novel environment. The medical scientists being provided and furthered, medical education must also train large bodies of men to clear and cultivate the regions through which the pioneers have made trails, or, in plainer words, to apply to millions of men and women in all sorts of climate and environment the discoveries of the scientists. Thus thousands of physicians all over our southern states must for years be teaching the people how to protect themselves from yellow fever. Major Walter Reed and his colleagues proved how yellow fever is communicated, and — what was equally important — how it is not communicated; but thousands of medical men must see to it that intelligent application is made of that precious knowledge.

Recent events have brought into strong light a new function of the medical profession which is sure to be amplified and made more effective in the near future. I mean the function of teaching the whole population how diseases are caused and communicated, and what are the corresponding means of prevention. The recent campaign against tuberculosis is a good illustration of this new function of the profession. To discharge it well requires, in medical men, the power of interesting exposition, with telling illustration and moving exhortation. Obviously, the function calls for disinterestedness and public spirit on the part of the profession; but to this call it is certain that the profession will respond. It also calls for some new adjustments and new functions in medical schools, which should hereafter be careful to provide means of popular exposition concerning water supplies, foods, drinks, drugs, the parasitic causes or consequences of disease in men, plants and animals, and the modes of communication of all communicable diseases.

Medical museums should be arranged, in part, for the instruction of the public, and, with some suitable reservations, should be statedly open to the public. The medical schools should also habitually provide popular lectures on medical subjects, and these lectures should be given without charge on days and at hours when working people can attend. In other words, selected physicians should become public preachers, as well as private practitioners. America has much to learn from Europe in regard to this public-spirited service on the part of the profession.

In another respect the teaching of medicine must be broadened in the century we have now entered on. Medical study has been, in time past, far too exclusively the study for man's body by itself. Hereafter, the study of medicine must be largely comparative, or, in other words, must include man's relations to the animal and vegetable kingdoms. The Harvard Medical School enters into possession of its new buildings with three professorships of comparative medicine already established,— the professorships of comparative anatomy, comparative physiology and comparative pathology. This tendency to comparative study has been already well developed in other subjects, as, for example, in comparative psychology, legislation and religion. Wherever this study by comparison wins adequate place, it makes the study of the subject broader and more liberalizing, and the results obtained more comprehensive and just.

Medical students should, therefore, have studied zoölogy and botany before beginning the study of medicine, and should have acquired some skill in the use of the scalpel and microscope. It is absurd that anybody should begin with the human body the practice of dissection or of surgery; and, furthermore, it is wholly irrational that any young man who means to be a physician should not have mastered the elements of biology, chemistry and physics years before he enters a medical school. The mental constitution of the physician is essentially that of the naturalist; and the tastes and capacities of the naturalist reveal themselves, and, indeed, demand satisfaction long before twenty-one years of age, which is a good age for entering a medical school. The Harvard Medical School has derived great advantages from its requirement of a previous degree for admission; but in view of the fact that many young men procure a bachelor's degree without ever having studied any science, the school needs an additional and more specific requirement, namely, a previous knowledge of biology, physics and organic chemistry, and an acquaintance with laboratory methods in all three subjects.

As at the preliminary stages of the medical career, so at its climax there is an increasing need of men who have a working knowledge of several sciences which were formerly treated as distinct, and whose best representatives in medical schools labored apart, each in his own field. The most promising medical research of our day makes use of biological, chemical and physical science combined. Physiology advances by making applications of the principles, the methods, and the implements of all three sciences. The physiologist listens to the normal or abnormal sounds in the bodies of men and animals with a modified telephone, and may record by electricity almost all the phenomena he studies. Bacteriology and biological chemistry go hand in hand in serving pathology and the public health.

A great number of new chemical substances, coming from organic sources, and yet as definite and uniform in composition as salt or alum, prove serviceable in pharmacology and in physiological and pathological research, although they were neither discovered nor manufactured with any such purpose in view. The stainings of bacteriological technique, and the quantitative color tests for characteristic ingredients in the various secretions of the body, ingredients which fluctuate in amount in health or in disease, illustrate the present dependence of medical research on chemistry and physics.

For the effective study of the toxins and antitoxins, within and without the body, the bacteriologist and the biological chemist must co-operate. Many of the effects produced by the toxins in the living body are definite chemical changes, such, for instance, as may be produced by the activation of certain ferments, and the antagonism of toxin and antitoxin is probably a chemical reaction. Many of the great discoveries of the future will come through the co-operation of sympathetic groups of medical scientists representing different modes of attacking the same problem. There will be a like necessity for co-operation between the clinician, the pathological anatomist, the physiological chemist and the bacteriologist.

The world has observed and will not forget that some of the greatest contributors to the progress of medicine and surgery during the past thirty years have been, not physicians, but naturalists and chemists. Pasteur was a chemist; Cohn, the teacher of Koch, a botanist, and Metschnikoff, a zoölogist. Students of disease must, therefore, be competent to utilize in their great task every aid which natural science can furnish. How vastly is the range of medical science and medical education broadened by this plain necessity! The dignity and serviceableness of the medical profession are heightened by every new demand on the intelligence and devotion of its members.

The recent liberal endowment of the Harvard Medical School by private persons is an indication that the more intelligent and public-spirited portion of the American people is beginning to understand that most diseases would be preventable if only mankind had acquired the knowledge needed to prevent them. The urgent duty of society to-day is to spend the money needed to get that knowledge. How to spend it we have learned; witness the admirable work of the Massachusetts Board of Health for thirty years past, aggressive work, both defensive and offensive; witness also the remarkable results of the medical institutes, both in this country and in Europe.

The medical profession of the future will have the satisfaction not only of ameliorating the condition or prolonging the life of the suffering individual, but also of exterminating or closely limiting the preventable diseases.

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THE UNITY OF THE MEDICAL SCIENCES.*

BY WILLIAM H. WELCH, M.D., LL.D.,
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The dedication of the new buildings of the Harvard Medical School is an occasion for rejoicing, not to Harvard University alone, but to all in this country and elsewhere interested in the progress of medical education and of medical science, and in behalf of all such I beg to offer to this University hearty congratulations upon this magnificent addition to its resources for medical teaching and study. Medicine everywhere, and especially in America, has reason to be profoundly grateful to the generous and public-spirited donors who have made possible the construction of this group of buildings, unsurpassed in the imposing beauty and harmony of their architectural design and in their ample, internal arrangements. This design is adapted from the Greek, and it is peculiarly fitting that the medical sciences should be housed in a style which suggests the spirit of ancient Greece, where first flowed the springs of medical science and art, living springs even to this day. In the singular harmony of the architecture of the group of buildings devoted to the various medical sciences is typified the unity of purpose of these sciences and their combination into the one great science of medicine. What I shall have to say on this occasion is suggested in part by this conception of the unity of medical science.

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* An address delivered Sept. 26, 1906, in Sanders Theatre, Cambridge, on the occasion of the dedication of the new buildings of the Harvard Medical School.

The good fortune of the Harvard Medical School, in coming into possession of the splendid laboratories now formally dedicated, is well merited by the leading position which this institution has held in this country since its foundation, by its union with Harvard University and by the assurance that the greatly enlarged opportunities will here be used to the highest advantage. Since the appointment, in 1782, of its first professors, John Warren and Benjamin Waterhouse, of enduring fame, this school has had a long line of honored names upon its roll of teachers, lustrous not only for such single stars as Channing and Ware and Holmes and Ellis and Cheever, but especially for its binary and even quadruple stars, the Warrens, the Jacksons, the Bigelows, the Shattucks, the Wymans, the Bowditches, the Minots; and it will not be deemed invidious on this occasion to mention of the latter group the names of two members of the present distinguished faculty to whose services this school is so largely indebted for securing the funds for the new buildings, Prof. Henry P. Bowditch, the eminent leader of American physiologists, and Prof. John Collins Warren, who as surgeon, writer and teacher has so worthily maintained and enhanced the ancestral fame.

The Harvard Medical School has been a pioneer in this country in many improvements of medical education; it has stood successfully in an historic city and commonwealth for high standards of professional attainment and honor, and for just recognition of the dignity and usefulness of the profession; it has made valuable contributions to the advancement of medical knowledge and practice, and, above all, there issued from this School and the Massachusetts General Hospital through John Collins Warren, the elder, and Samuel G. Morton, medicine's supreme gift to suffering humanity of surgical anesthesia.

This school, however, has no possession so valuable or which gives such assurance of its stability and growth for untold generations to come and of the worthy bestowal of the great gifts which were dedicated yesterday as its union with Harvard University; and it is befitting that the significance of this university relationship should be emphasized by including among the dedicatory ceremonies this academic function in the halls of this great university.

The severance of the historical union of medical school and university, leading to the establishment of a multitude of independent medical schools without responsible control, and usurping the right to confer the doctor's degree and the license to practise, is accountable in large measure for the low position to which medical education in this country sank during the larger part of the last century, and from which it has now risen in our better schools to a height which we can contemplate with increasing satisfaction. Nor would it be difficult to show, if this were the suitable occasion, that our universities on their side have suffered from the loss of a member which has brought renown to many foreign universities, and that many of the embarrassing anomalies of our collegiate system of education are due to lack of personal contact, on the part of colleges and universities, with the needs of professional, especially medical, training. There is, of course, no saving grace in a merely nominal connection of medical school and university; the union to be of mutual benefit must be a real and vital one; ideals of the university must inspire the whole life and activities of the medical department.

To have recognized fully from the beginning of his administration the importance of this vitalizing union of the medical school with the university, to have striven patiently with full grasp of the problems and with intelligent sympathy with the needs of medicine for the uplifting of the standards of medical education, and, with the aid of his medical colleagues, to have planted these standards where they now are in the Harvard Medical School is not the least of the many enduring services which President Eliot has rendered to American education, and, in behalf of our profession, I wish to make to you, sir, on this occasion grateful acknowledgment of this great and beneficent work.

The opening of the new laboratories of the Harvard Medical School marks the culmination, up to the present time, of an educational and scientific movement which has been the most distinctive characteristic of the development of medicine during the past fifty years and which has transformed the face of modern medicine. To have some idea of the extent and the direction of this development, consider how inconceivable would have been the mere existence of such laboratories a century ago, and how impossible it would have been, for even a Bichat or a Laënnec to have put them to any use or to have imagined their use. The only scientific laboratory which existed at that time was the anatomical, and this had been in existence for at least two hundred and fifty years, although not in a form which meets our present ideas of such a laboratory.

The modern scientific laboratory was born in Germany, in 1824, when Purkinje established the first physiological laboratory, thus antedating by one year the foundation of Liebig's chemical laboratory, which had a much greater influence upon the subsequent development of laboratories. As might naturally be expected, anatomical and physiological laboratories had attained a considerable development before the first pathological laboratory was founded in Berlin by Virchow. The opening and activities of this laboratory, which has recently celebrated its fiftieth anniversary, mark an era in the progress of medicine. With the exception of the modest beginning of a pharmacological laboratory by Buchheim about 1850, all of the other medical laboratories — those of physiological chemistry, of hygiene, of bacteriology, of clinical medicine — originated at a much later date.

This remarkable growth of laboratories for the cultivation of the various medical sciences has been at once the cause and the result of the rapid progress of medicine in recent years. By teaching and exemplifying the only fruitful method of advancing natural knowledge, laboratories have overthrown the dominance of authority and dogma and speculation, and have turned medicine irrevocably into the paths of science, establishing the medical sciences as important departments of biology; by demonstrating that the only abiding, living knowledge, powerful for right action, comes from intimate, personal contact with the objects of study, they have revolutionized the methods of medical teaching; by discovery they have widened the boundaries of old domains and opened to exploration entirely new fields of knowledge, by the application of which man's power over disease has been greatly increased.

Medicine, as a science, is occupied with the systematic study of the structures and functions of the human and animal body in health, of their changes by disease and injury, and of the agencies by which such morbid changes may be prevented, alleviated or removed. Its ultimate aim, which indicates also its method, is that of all sciences, the deduction of general concepts and laws from the comparison of the relationships and sequences of ascertained facts, and the application of these laws to the promotion of human welfare. This goal, to-day far from realization, is most nearly approached where the principles of physics and of chemistry can be applied; but there remains a large biological field awaiting reclamation for the application of these principles. The subject matter of medical study, as thus indicated, is of supreme import to mankind, but complex and difficult far beyond that of any other natural or physical science.

The places where such study may be most advantageously carried on are laboratories and hospitals supplied with the material for study, with the necessary instruments, appliances and books, and with trained workers. By growth of medical knowledge the field to be covered has become so vast as to require much subdivision of labor; nor is it to be supposed that the end of this subdivision has been even approximately reached.

From human anatomy, the mother of medical as well as of many other natural sciences, there branched off in the eighteenth century physiology and, still later, pathological anatomy. As if to replace these losses anatomy gave birth to comparative anatomy, embryology and microscopic anatomy as more or less separate branches.

During the past century physiological chemistry and pharmacology have separated from physiology, and comparative pathology and experimental pathological physiology are asserting their independence from pathological anatomy.

Hygiene and bacteriology are of recent and more independent growth. The latter, lusty stripling, with the rise of medical zoölogy, especially protozoölogy, is seeking a more comprehensive and appropriate designation. The latest and perhaps the most significant development is the clinical laboratory in its various forms.

Specialization in scientific work should not be decried; it is demanded by the necessities of the case and has been the great instrument of progress, but the further division of labor is carried, the more necessary does it become to emphasize essential unity of purpose and to secure co-ordination and cordial co-operation of allied sciences. Especially urgent is full recognition of the unity and co-operation of the clinic and the laboratory.

During the last two decades we have witnessed in this country the extraordinary rise of practical laboratory instruction from the weakest to the strongest and best organized part of the medical curriculum of our better schools. Our laboratory courses are, I believe, in several instances more elaborate and occupy more time than corresponding ones in most foreign universities.

As was emphasized by Dr. Dwight and Dr. Shattuck in their remarks yesterday, it is, however, an error to suppose that from the point of view of science any fundamental distinction exists between the clinical and the so-called laboratory subjects other than that based upon differences in the subject-matter of study. The problems of the living patient are just as capable of study by scientific methods and in the scientific spirit and they pertain to independent branches of medical science just as truly as those of anatomy, physiology or the other so-called laboratory subjects. All of the medical sciences are interdependent but each has its own problems and methods, and each is most fruitfully cultivated for its own sake by those specially trained for the work.

There is a highly significant and hopeful scientific movement in internal medicine and surgery to-day, characterized by the establishment of laboratories for clinical research, by the application of refined physical, chemical and biological methods to the problems of diagnosis and therapy, and by the scientific investigation along broad lines of the special problems furnished by the living patient. The most urgent need in medical education at the present time in this country I believe to be the organization of our clinics both for teaching and for research in the spirit of this modern movement and with provision for as intimate, personal contact of the student with the subject of study as he finds in the laboratory.

In addition to undergraduate instruction our laboratories at present furnish better opportunities for the prolonged, advanced training of those intending to make their careers in anatomy, physiology, pathology and other sciences, than are afforded by most of our hospitals to those who aim at the higher careers in medicine and surgery. A further disadvantage is that while the former class after good scientific work may reasonably look forward to desirable positions as teachers and directors of laboratories, the latter, however high their attainments, in consequence of the separation of the medical school from any control over the appointments to the hospital staff, cannot anticipate with any degree of assurance similar promotion in their chosen lines of work, and consequently the medical faculty has not so wide a field of choice in filling the clinical chairs as in filling those of the auxiliary sciences.

The removal of these deficiencies on the clinical side of medical education in America requires some reorganization of its staff on the part of the hospital and the control by the medical school of its hospital, or, at least, its voice in appointments to the hospital staff. So far as our resources permit, we have, I think, accomplished this reform at the Johns Hopkins Medical School and Hospital. The welfare of the patient is the first obligation of the trustees of hospitals and of physicians in attendance, but nothing is more certain than that cordial co-operation between medical school and hospital best subserves the promotion of this welfare. Fortunate the hospital and fortunate the patients brought into such relations with the Harvard Medical School.

As is strikingly illustrated by the new buildings of this school, the educational machinery of medicine to-day is vastly complicated and costly compared with the simplicity of the days when a lecture room, a dissecting room, a simple chemical laboratory, and a clinical amphitheater were all that was needed. The purpose of medical education, however, remains to-day what it has always been and will continue to be, — the training of the student for the future practice of his profession, and to this end in an harmonious scheme of education the various medical sciences all work together. Right action requires abundant knowledge, nowhere more so than in medical practice; and the all-sufficient justification for the position held by the various sciences in the preliminary and the professional education of the physician is that they furnish knowledge and discipline of mind needed in the preparation for his future work. The social position of the medical man and his influence in the community depend to a considerable extent upon his preliminary education and general culture. For this reason as well as for his intellectual pleasure in his profession and as a sound foundation for his future studies the student should enter the medical school with a liberal education, which should include training in the sciences fundamental to medicine.

The unity of the various medical sciences is manifested not only in their historical development and in their co-operation in the scheme of medical education, but especially in their contributions to the upbuilding and progress of medicine as a whole.

There is no branch of medicine or even of physical science which has not played an important part in the evolution of our present medical knowledge and beliefs. The great lesson taught by the history of this development of medicine through the centuries has been the unconditional reverence for facts revealed by observation, experiment and just inference as contrasted with the sterility of mere speculation and reliance upon transmitted authority. The great epochs of this history have been characterized by some great discovery, by the introduction of some new method, or by the appearance of some man of genius to push investigation and scientific inference to limits not attainable by ordinary minds. The history of medicine has a greater unity and continuity and extends over a longer period of time than that of any other science.

The first clear note, which has rung down the ages, was sounded by Hippocrates when he taught the value of the inductive method by simple, objective study of the symptoms of disease, and the cry "Back to Hippocrates" has more than once recalled medicine from dogmas and systems into sane and rational paths. Medicine, however, was handed on from the Greeks and Romans in bondage to a system of doctrine, constructed by Galen, so completely satisfying to the medieval mind that this system remained practically untouched for over a thousand years.

With the liberation of intellect through the Renaissance came the great emancipators, in the sixteenth century, Vesalius and, in the seventeenth, Harvey, the former placing human anatomy upon a firm foundation and bringing medicine into touch with the most solid basis of fact in its domain, the latter bringing to light in the demonstration of the circulation of the blood the central fact of physiology and applying for the first time in a large and fruitful way to medicine the most powerful lever of scientific advance, the method of experiment.

In the century of Galileo, Harvey and Newton, instruments of precision, as the chronometer, the thermometer, the balance, the microscope, were first applied to the investigation of medical problems, and physics began to render those services to medicine which, continued from Galileo to Röntgen, have been of simply incalculable value. The debt of medicine to chemistry began even with the rise of alchemy, received an immense increment from the researches of Lavoisier, the founder of modern chemistry, concerning the function of respiration and the sources of animal heat, and has grown unceasingly and to enormous proportions up to these days of physical chemistry, which has found such important applications in physiology and pathology.

How disastrous may be to medicine the loss of the sense of unity in all its branches has been very clearly and admirably shown by Professor Allbutt in depicting the effects which for centuries followed the casting off from medicine of surgery as a subject unworthy the attention of the medical faculty. Thereby internal medicine lost touch with reality and the inductive method and remained sterile and fantastic until the days of Harvey, Sydenham and Boerhaave. The services of surgery to medicine as a whole, so brilliantly exemplified in the experimental work of John Hunter in the eighteenth century, have become a distinguishing feature of the medicine of the present day.

The great awakening of clinical medicine came in the early part of the nineteenth century from the introduction of the new methods of physical diagnosis by Laënnec and from pathological anatomy. The subsequent development of scientific and practical medicine has far exceeded that of all the preceding centuries. It has kept pace with the progress, during the same wonderful century, of all the sciences of nature, and has contributed even more to the promotion of human happiness.

In anatomy, with embryology and histology, in physiology, pathology, physiological chemistry, pharmacology, hygiene, bacteriology,— sciences which are ancillary to medicine and at the same time important branches of biological science,— there have been marvellous activity and expansion. For physiology and the understanding of disease the establishment of the cell doctrine by the aid of botany, embryology and pathology has been the greatest achievement. By the combined aid of physiology, physiological chemistry, experimental pathology, improved methods of diagnosis and clinical study, medicine has gained new and higher points of view in passing from too exclusive emphasis upon the final stages of disease revealed by morbid anatomy to clearer conceptions of the beginning and progress of morbid processes as indicated by disturbances of function, and, above all, has penetrated to the knowledge of the causation of an important class of diseases, the infectious. As a result of this rapid growth of knowledge in many directions has come a great increase in the physician's power to do good by the relief of suffering and the prevention and cure of disease.

In this connection I wish especially to emphasize the mutual helpfulness of the various medical sciences in the development of medical knowledge and practice. Attention is generally so concentrated upon the final achievement that there is danger of losing sight of the manifold sources which have contributed to the result. Consider, for example, the indispensable share of embryology, of anatomy, gross and microscopic, of physiology, of pathological anatomy, of clinical study in the evolution of our knowledge of the latest contribution to diseases of the circulatory system,— that disturbance of the cardiac rhythm called "heart block." Similar illustrations of the unity of the medical sciences and of the co-operation of the laboratory and the clinic might be multiplied indefinitely from all classes of disease.

The same phenomenon is exhibited in medicine as in all science, that the search for knowledge with exclusive reference to its practical application is generally unrewarded. The student of nature must find his satisfaction in search for the truth and in the consciousness that he has contributed something to the fund of knowledge on which reposes man's dominion over reluctant matter and inexorable forces.

How readily better action attends upon increased knowledge is shown by the part which the art of medicine is playing and is destined to play even more prominently in the world's progress. The value of this work of modern medicine is to be measured in part, but only in part, by the standard applied by the average man, namely, improvement, which, indeed, has been great, in the treatment of disease and injury. It is, however, its increasing power to check the incalculable waste of life, of energy, of money, from preventable disease that places medicine to-day in the front rank of forces for the advancement of civilization and the improvement of human society. Economists and other students of social conditions have begun to realize this; but governments and the people are not half awake, and medicine, shaking off all mystery, has before it a great campaign of popular education.

The knowledge which has placed preventive medicine upon a sound basis and has given it the power to restrain and in some instances even to exterminate such diseases as cholera, plague, yellow fever, malaria, typhoid fever, tuberculosis and other infections has come from exploration of the fields opened by Pasteur and by Koch. This power and the certainty of increasing it has given great strength to appeals for the endowment of medical research and the construction of laboratories. What is all the money ever expended for medical education and medical science compared with the one gift to humanity of Walter Reed and his colleagues of the Army Commission,— the power to rid the world of yellow fever?

Great as has been the advance of medicine in the past half century, it is small, indeed, in comparison with what remains to be accomplished. Only a corner of the veil has been lifted. On every hand there are still unsolved problems of disease of overshadowing importance. The ultimate problems relate to the nature and fundamental properties of living matter, and the power to modify these properties in desired directions. Here we are far from the satisfactory *pou sto*. But knowledge breeds new knowledge, and we cannot doubt that research will be even more productive in the future than it has been in the past. It would be hazardous in the extreme to attempt to predict the particular direction of future discovery. How unpredictable, even to the most far-sighted of a past generation, would have been such discoveries as the principles of antiseptic surgery, antitoxins, bacterial vaccines, opsonins, the extermination of yellow fever or malaria by destruction of a particular species of mosquito and many other recent contributions to medical knowledge.

The activities within the new buildings of the Harvard Medical School begin at a period of medical development full of present interest and full of hope for the future, and it may be confidently predicted that they will have an important share in the onward movement, educational and scientific, of medicine.

One side of these activities will be devoted, under conditions most admirable as regards teachers, methods and opportunities, to the training of medical students and to advanced instruction. Supplemented by similar opportunities for undergraduate and advanced training in the hospital wards and dispensary these conditions will be ideal.

The inspection of these noble new buildings, however, shows clearly that those who have planned them with such care, foresight and sagacity, while recognizing fully their important educational uses, have had also another and a main thought in their arrangements, namely, their adaptation to the purposes of original research. It is this dual function of imparting and of advancing knowledge which justifies the expenditure of money and which insures a return of the capital invested in buildings, equipment and operation with a high rate of interest in the form of benefits to mankind.

The most ample and freely available facilities are an important condition for productive research, but on this creative side of university work men count for more than stately edifice and all the pride and pomp of outward life. Research is not to be bought in the market place, nor does it follow the commercial law of supply and demand. The multitude can acquire knowledge; many there are who can impart it skillfully; smaller, but still considerable, is the number of those who can add new facts to the store of knowledge; but rare, indeed, are the thinkers, born with the genius for discovery and with the gift of the scientific imagination to interpret in broad generalizations and laws the phenomena of nature. These last are the glory of a university. Search for them far and wide beyond college gate and city wall, and when found cherish them as a possession beyond all price.

By the possession of investigators such as these, by the character and work of teachers and taught, by the advancement of knowledge and improvement of practice, may this new home of the Harvard Medical School be a center for the diffusion of truth in medicine, the abode of productive research, a fortress in the warfare against disease, and thereby dedicated to the service of humanity.

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The new American Hospital and Training School for Nurses, recently established in Constantinople by Dr. Thomas S. Carrington of this city, was burned to the ground on the eve of its formal opening, at a loss of $10,000, partly covered by insurance. The Board of Directors proposes to rebuild at once, and plans for raising the funds are under way. — *Medical Record.*

Original Articles.

HYSTERIA FROM THE POINT OF VIEW OF DISSOCIATED PERSONALITY.[1]

BY MORTON PRINCE, M.D., BOSTON,

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My object in this paper is to study certain well-known types of hysteria from the point of view of dissociated or disintegrated personality, and, conversely, dissociated personality from the point of view of hysteria. For the purposes of this study the method will be entirely clinical, that is to say, I shall take into consideration only such manifestations as may be observed by the clinician, without consideration of the psychopathological changes which underlie hysteria and multiple personality.

Let me at the outset define the type of hysteria which has been selected for study, for there is hysteria and hysteria. Probably in no disease is there such a diversity of type, ranging all the way, for example, from a localized anesthesia of the hand caused by a pin prick, through hemianesthesia and hemiplegia accompanied by various stigmata, to fixed ideas, obsessions, amnesias and insanities. Only by grasping the fundamental pathology of this protean disease can this diversity of type be understood, but this aspect of the problem lies beyond the scope of this paper.

The type, then, which has been selected for this study is that well-known one which often follows traumatism and emotional shocks and is then known as a form of traumatic neurosis or psychosis, but also follows other conditions. Examination of the individual case frequently reveals one or more of various physiological stigmata like anesthesia, paralysis, limitation of the visual field, contractures, vomiting, sometimes hemorrhage from the mucous membranes, pains, insomnia, convulsions and various crises, and, most frequently of all, the neurasthenic state. With or without such physical stigmata, there may be and commonly are various mental alterations; for instance, there may be amnesia in its various forms, emotionability, irritability, change of moods, which may be characterized by violence and quickness of temper, altered reactions to the environment, abnormal instability and suggestibility, abulia and fixed ideas, especially in the form of fears of one kind or another. Hallucinations, either idiopathic or artificially induced, may occur. A greater or less number of these corporeal and mental manifestations may be present. Sometimes the corporeal predominate and sometimes the mental, but it is a fact which is often overlooked that a high degree of hysteria characterized entirely by mental alterations without any corporeal stigmata, other than the neurasthenic state, may exist. But sometimes the mental stigmata are only mildly manifested, in which case they are often entirely overlooked or ascribed to mere moodiness. Aborted forms, or little hysteria, these minor alterations may be called. Every neurologist is so familiar with this general type of hysteria that I need not cite individual cases, but I may point out that when we group the mental stigmata we find that they often constitute a veritable alteration of the personality of the individual. Even the friends of the patient often comment on this fact. The gentle mannered become violently irascible; the patient impatient; persons with good memory forgetful and even totally amnesic for certain periods; the truthful untruthful; the thoughtful careless; the well balanced unbalanced; the cheerful depressed and moody; the even tempered uneven; those with decision of character and strong will manifest indecision and abulia; the self-reliant become dependent, and so on.

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[1] Read before the Boston Society for Psychiatry and Neurology, 1906.

Turning now to so-called "dissociated or multiple personality" we shall find that the same symptom-complex which passes under the name of hysteria now may make up one or more of the phases of the multiple individual, where it can be recognized as the manifestation of disintegrated personality. Multiple personality, of course, is the same thing as dissociated or what is also termed "disintegrated personality," where the normal individual alternately becomes disintegrated and healthy, changing back and forth from health to disease; or, from the point of view of this study, becomes alternately an hysteric and healthy. Where there are more than two personalities, we may have two hysteric states successively changing with each other, and, it may be, with the complete healthy person. That multiple (disintegrated) personality is a type of hysteria is well recognized, but it is not recognized that the converse is true, viz., that the hysteric is a disintegrated personality, and, therefore, as contrasted with the previous normal condition, is pathologically a phase of multiple personality, and, potentially at least, always liable to exhibit the phenomenon of alternation. The failure to recognize this relationship of the hysteric state to the normal condition is due to the fact that what we call the hysteric *remembers* his previous normal life; but so do, as we shall see, many types of disintegrated (multiple) personality.

The clinical characteristics of multiple personality are not so widely understood as those of other psychoses, nor, so far as I know, have they thus far been clinically studied in a group, as we are in the habit of doing in delineating the characteristics of a psychosis. I have selected, therefore, from the reported cases, those which have been sufficiently well analyzed, some twenty in number, to allow us to recognize the essential clinical characteristics manifested, and have tabulated the most important features. (See table.)

Two of these cases I have been able to study continuously myself, while one (Case XI) I was able to observe through the kindness of the reporters. When we analyze the clinical manifestations of these cases, we find that while amnesia is often the most obtrusive, and, from its character, the most impressive symptom, it is not always present, and that the one fundamental characteristic which runs through all cases is the alteration of character or personality in one or another of its forms. In other words, disintegrated personality means fundamentally just what its name implies. Nevertheless, the notion of multiple personality has become so strongly but wrongly associated in our minds with the presence of amnesia that the two are sometimes regarded as necessarily linked, if not as synonymous terms. The fact is that our conception of multiple personality has been derived entirely from those sensational cases in which, with the development of a second or third personality, there has developed an amnesia on the part of one of the personalities for the life of another. These amnesic cases may exhibit very great alterations of character, habits, modes of conduct and of thinking, as well as alterations of the intellectual faculties of the individual. These peculiarities, combined with amnesia for alternating epochs, necessarily give rise to what are known as secondary characters or personalities. These secondary personalities may possess very acutely endowed mental faculties (Case I,[1] B I and B IV), or they may have mental faculties so impaired as to live a life of delirium, or dream life (Case I, several states, B IV*c*, B IV*d*, etc.; Case XVIII, S II; Case XIX, F II; Case XX—II), or to be little more than dements (Case I, B II*a;* Case X, x — IV; Case XIII, B I and B I*a* and B X). In character they may be highly moral, or they may be so-called degenerates of an extreme type (Case V, F I; Case IX, Vivé III; Case X, x — III; Case XIII, B IX (?); Case XV, E II; Case XVII — II), given to lying, stealing, brawling, and other crimes. Such cases appeal to the imagination, and, from their very bizarre character, have colored the popular conception of multiple personality; while the loss of memory for large epochs of the individual's life has given the amnesic stamp to our conception of this condition.

Now when we come to study the cases of the table it will be seen that in a certain proportion of cases any given symptom-complex may develop without loss of memory for the previous normal life, the patient sliding, so to speak, into a condition in which there is a marked alteration of the mental faculties, of the moral character, and of the physical condition, these alterations embracing many of the multiform stigmata of hysteria. The patient may remain continuously for a long period of time in this condition, perhaps for many years (Cases: I, II, III, IV, V, VII, etc.), and, it might be, indefinitely, if artificial interference is not invoked to change the condition. In this state there is nothing to suggest, from the point of view of the conventional conception of hysteria, that we have to do with anything more than the classical hysteric. The patient remembers his whole life; he exhibits certain alterations of character, such as moodiness, ugliness of disposition, mental depression, noisiness, etc., or the reverse; and he presents one or more of the conventional stigmata-hystero-epileptic attacks, paralysis, contractures, anesthesia, limitation of the visual field, etc. The case is in reality a type of hysteria, as it is customarily and quite properly diagnosed.

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[1] The cases cited throughout the text in illustration of the statements are not intended to be all the examples that might be taken from the table; for complete data the reader is referred to the tabulated cases.

Now, after a certain length of time — either through artificial interference, such as the hypnotizing process (Cases I, III, IV and X), or as a result of an emotional shock (Case VI), or, it may be, without demonstrated cause (Case V) — the subject suddenly becomes completely and wholly normal. In this restored normal condition the patient may (but not always) have a complete memory for the previous abnormal life. Thus far it will be seen nothing very unusual has happened. Sudden cures in hysteria are as old as the world. But now it may be that there is a sudden relapse, a sudden restoration *in mass* of the previous hysteric state. It would seem as if the hysterical disarrangement of the neuron systems, or, if one prefers, of the nervous and mental processes, had previously become by habit so organized as to form a system that could be substituted for the normal system. At any rate, the hysteric state is re-established; but now amnesia for the first time is added to the hysterical symptom-complex, but it is not an amnesia for the previous normal life (which is remembered as before) but only for the newly restored normal condition. Amnesia, in itself, as we shall see, is nothing extraordinary in hysteria, but is more or less frequently observed, particularly when this psychosis is suddenly developed, as often occurs after shocks.

In such cases as we are describing, another phenomenon, that of alternation, is now added. The hysteric state alternates from time to time, *in mass*, with the normal condition, the alternation occurring perhaps only as a result of artificial interference (Cases III and IV), or spontaneously (Case V), or in both ways (Case I).

While in the hysterical state there may continue to be amnesia for the restored normal condition, in the normal condition the patient may have, as just stated, a complete or nearly complete memory for his whole life, including that for the disintegrated hysterical condition (Cases I, III, IV, V, VIII [?], X), or on the contrary he may have amnesia for the latter (Cases VI, XVI, XIX, etc).[2]

In the popular conception rather undue importance is given to this alternation in mass of the pathological and normal states as well as to amnesia. Alternation, in one or another of its various forms, is a well-known phenomenon of the hysterical complex. The well-known sudden transfer of anesthesia and paralysis from one side of the body to the other under artificial interference (verbal suggestion, metallotherapy, and other therapeutic devices), or spontaneously, is a phenomenon of alternation, one half the body becoming alternately well and abnormal, as well as alternating with the other half in becoming possessed of the stigmata. Likewise, the sudden coming and going of such conditions as paralysis, contractures, tics, anesthesias, and the alternation of one or more with others, is an analogous phenomenon. In the particular type we are considering, the alternation is of a large group of symptoms in mass instead of a limited number. In circular insanity we have the alternation in mass of a large group of mental alterations. I might cite here, too, in illustration, a case of "psychasthenia" (hysteria?) of my own, in which with absolute precision on alternate days the patient presented absolutely different pictures: a condition of melancholia, pain, paresthesiæ and fatigue, alternating with one of restlessness, motor energy, and freedom from pain and fatigue. Case XVI is a remarkable example of this cyclical alternation, of an extreme form and accompanied by amnesia.

The fact of alternation is a phenomenon in itself, and has great significance from the light it throws on the nature of the hysterical derangement; but the fact that an hysterical phase alternates with a normal phase, or, as occurs in another class of cases, with another different hysterical phase, in no way alters the hysterical character of the phases.

The alternation in mass of a hysterical state with the normal condition allows it to be seen that the hysterical symptom-complex is not only a disintegration of personality, but, from one point of view, a phase of multiple personality. The changing back and forth of the two states, with amnesia on the part of one or the other, or both, brings out the contrast between the hysteric and the normal. The hysteric stands out plainly as a different personality, in the sense of a disintegrated personality with a well organized though pathologically deranged nervous system. There is a doubling of personality — a normal and abnormal one — and the abnormal hysteric is seen to be a phase of this double personality. Before the phenomenon of alternation was established, this doubling was obscured by the gradual transition from health to disease, and by the retention of memory. There was no contrast. Nevertheless, at this period the pathological condition was in every way identical with that which existed after alternation occurred. That the hysteric is both a disintegrated personality and a phase of two cycles, of which the normal is one cycle, is, perhaps, still more clearly brought out in those more complex cases where the normal person breaks up into two or more different hysterical states or psycho-physiological systems (Cases I, VII, IX, X and XIII). Each state is an hysteric. Each successively changes in mass with the others. That each is a secondary personality, and a phase of multiple personality, is manifest; yet one of them, say the first to appear, has, in a given case, a complete memory for the previous life before the break-up, and until the development of a third or fourth personality, could only be regarded as an ordinary hysteric (Cases I, VII, IX).

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[2] Some of these examples of amnesia perhaps belong to the type of sudden transformation into the disintegrated state rather than to that of gradual transformation. Similar examples might be taken from the more complex cases with several secondary personalities. [illegible]

The final restoration of the normal life as one of the cycles becomes the final demonstration of the disintegrated nature of the hysteric state. The following short *résumé* of certain features of Case I will make this clear:

Case I, Miss B.[1] When this case first came under observation, B I was the sole personality in existence. There was no reason to regard the case at that time, and for that matter there is no reason to-day to regard this personality as anything more than an hysteric. In many clinics the case would have been diagnosed as neurasthenia. The main symptoms were a persistent and extreme sense of fatigue, insomnia, poor nutrition, and pains without apparent physical basis; the memory of the whole preceding life was normal.

My diagnosis of hysteria was based on views which some may remember I have for years held, namely, that a very large part of so-called neurasthenia is hysteria.[2] My notes, taken at the time, when I never had a suspicion that the case, or rather the character under examination, might be regarded as a secondary personality, may be aptly cited to illustrate the clinical picture which the case presented:

"Is a pronounced neurasthenic of extreme type; has never been able to pursue steadily any occupation in consequence. Tried three times to do professional nursing and broke down. Is now studying at —— College; ambitious; good student; does good work, but always ill; always suffering. Over conscientious and mentally and morally stubborn. Is very nervous and different parts of body in constant motion. General appearance of an hysteric; cannot sit still, cannot fix her eyes to properly test field of vision; probably slight visual limitation, but this is difficult to determine. No objective anesthesia or other physical stigmata."

Later, when the case was deeply studied in view of the development of other personalities, it was found that various hysterical stigmata could be determined, though I want to point out that those special stigmata, — anesthesia, limitation of the visual field and paralysis, — which in the popular neurological mind are supposed to be almost the *sine qua non* of hysteria, were absent. There were plenty of other stigmata, however, to establish the presence of the hysterical state. For instance, there was abulia, first mistaken for stubbornness; extreme instability, through which environmental factors produced mental and physical reactions out of all proportion to the cause and which would never occur in a healthy, stable individual; there was an extreme emotionability, expressing itself in moods which were manifested by depression at one moment and exaltation the next; there was a tendency to domination of ideas and limitations of the field of consciousness; and there was abnormal suggestibility, which enabled anesthesia and hallucinations to be produced at will.

Surely here was a classical picture of hysteria; and yet it was also an altered or so-called secondary personality without amnesia for the whole previous life; for when, years afterwards, the normal individual was suddenly restored, there was then found, when a relapse occurred, to be amnesia on the part of the disintegrated hysteria for the restored normal condition.

This case is most instructive and gives us a new point of view for the interpretation of other cases. The case was typical of hysteria, on the one hand differing in no way from hundreds of other cases of hysteria which are met with in daily practice, while on the other hand the long-continued and exhaustive study proved conclusively that, though originally there was no amnesia, yet it was a condition of disintegrated and, therefore, secondary personality, the primary personality being the restored healthy individual.

An analysis of the tabulated cases reveals a number of other examples of classical hysteria which later developments demonstrated were pathologically dissociated personalities and cycles of double or multiple personality, the normal, condition being another cycle. Conversely, of course, phases of multiple personality may be types of hysteria. Take the first phase of the following:

Case III was an hysteric from the age of thirteen, manifesting hysterical chorea, crises, anesthesia, paralysis and uncontrollable vomiting; this condition alternated in mass with the normal state.

Case IV was an extreme hystero-epileptic, exhibiting anesthesia in its various forms, — deafness, amblypia, achromatopsia, paralysis, contractures, etc. This symptom-complex also alternated with a substantially normal condition.

Case V, described as an extreme hysteric from the age of thirteen, exhibited delirium, convulsions, paralysis, contractures, lethargy, trance, pulmonary hemorrhage, etc.; this condition alternated in mass, as in Case III and Case VI.

Case VII is an incomplete case, in that the normal phase was not restored, and, therefore, cannot as a cycle be contrasted with the hysteric. It is instructive, however, as exemplifying the successive development of two hysteric states, I and II, which were analogous to the states B I and B IV in Case I; both hysteric conditions having a continuous memory for the previous early normal life, while No. II, which had lasted nineteen years up to the time of the report, had amnesia for the nine years during which hysteric No. I persisted. Originally, as a consequence of an accident, the normal patient had developed a traumatic neurosis, manifested by paralysis, blindness, pain, convulsions, pulmonary hemorrhage, loss of speech and special senses, anesthesia, contractures, etc. This hysteric state, I, after a trance, changed to II, with similar stigmata, including amnesia for I. If the normal state had been restored the case would have resembled in many ways Case I.

Case IX is a complex case, and it is difficult to analyze all the various states, of which there were at least six. The interest for our present purpose lies in the fact that each was characterized by marked alterations of character and by its own physical symptoms. Thus the first hysteric was quiet, good, and orderly in character, but had paraplegia with contractures. The second, which developed out of a hystero-epileptic attack, had no paraplysis, but was quarrelsome, violent, choleric, greedy and a thief. The third, which also arose out of a hystero-epileptic attack, was quiet and orderly, but still altered in character; there was right hemiplegia with contractures. All these states remembered the original normal state, though ignorant of each other. Each symptom-complex, mental and physical, could change in mass with the others. The fact that each of these hysteric states is an undoubted hysteric personality, though remembering the previous normal life, brings out strongly the point of view from which hysteria is seen to be a disintegration of personality.

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[1] The Dissociation of a Personality. Longmans, Green, & Co., 1906.

[2] Hysterical Neurasthenia. Boston Medical and Surgical Journal, Dec. 29, 1898.

Case VI is also a type of hysteria, but as a phase of multiple personality it exemplifies another variety of such phases, as there was amnesia for the previous life. That there was amnesia was probably due to the fact, as borne out by other cases, that the hysterical condition developed suddenly, as the result of a railroad accident, instead of progressively. Later the normal condition was suddenly restored as a result of a second shock, and then memory of the previous life antecedent to the railroad accident was revived, though lost for the seventeen years of the hysteric state. The hysteric state is described by Dr. Mayer as depressed, moody, fearful, having fearful, frantic, sick headaches, ocular paralysis, constant hepatic pain and tenderness (diagnosed mistakenly as abscess), restless sleep, fits of abstraction, etc.

(To be continued.)

THE ULNAR NERVE AS A LANDMARK OF THE ELBOW.

BY F. J. COTTON, M.D., BOSTON.
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Everyone who operates learns to regard the nerves in the arm and leg as valuable landmarks in the wound, readily recognizable and constant in position; but only two nerves are readily recognizable from the outside,— the external popliteal as it rounds the fibula and the ulnar as it lies behind the internal epicondyle.

Injuries involving displacement at the knee are rare; at the elbow they are very common; moreover, the landmarks of the elbow are most uncertain at times, and a single indisputable landmark is of value; such is the ulnar nerve.

It lies in an anatomically constant position behind the internal epicondyle, bound down loosely by fibrous tissue; it is a large nerve; it is covered by no muscle; it can readily be reached even in the presence of much swelling, if this swelling is slowly massaged away; it may be identified in every case if reached, not only because it is the only cord-like structure at the back of the elbow that can be rolled under the finger, but also because the patient can readily assist in its identification, just as he can contribute to the identification of kidney or testis, by the subjective sensation; no one is in the slightest doubt as to when his " funny bone " is touched, whether there be an injury in this region or not. In many cases no other landmark at the elbow can be relied on; either condyle may be displaced by fracture and lose its characteristic shape and place so far that it cannot certainly be identified.

At times I have found myself utterly confused in identifying these landmarks, and I fancy everyone who is in the habit of checking his observations by the skiagraph must have had the like difficulty. In such cases I have gradually learned that the best thing to do is to start afresh, to look first for the ulnar nerve and then to work out other relations from this point. I cannot recall any failure to find it, or any difficulty in identifying it with certainty.

Particularly in the common and often overlooked fractures (or, more properly, epiphyseal separations) of the internal epicondyle, it is of obvious service. If we can feel an ulnar nerve not lying in the backward hollow of the hook of the epicondyle, but lying exposed near the tip of a flat surface of bone, no argument is needed. The epicondyle is gone and we shall eventually find it displaced forward and downward as usual.

So with many other types of injury; we may be set right merely by feeling this nerve and having a *known* point to start with.

In teaching students one of the difficult things is to get them to recognize landmarks that they know in theory, but wofully miss when it comes to the necessarily abnormal patient; one of the hardest things in minor surgery for a student to get right is an injury of the elbow. For the past year I have been demonstrating to students the landmark here under consideration, and dictating as a rule that they shall first find the ulnar nerve, *then* look for the condyles. I do not think there is any error of prejudice in saying that the results of diagnostic trials have been better since this routine began.

The objection may be raised, and fairly raised, that the ulnar nerve may be displaced. I have previously observed a good many cases with regard to this displacement and have reported[1] certain cases of the recurrent displacement; but this recurrent displacement is relatively uncommon, and pertains only to the flexed position; it is present only in cases where the nerve is *obviously* movable beyond normal.

Permanent displacement of the ulnar nerve forward,— in front of the condyle,— is on record and undoubtedly does occur. I have, however, never met with it either as ante-accident condition or as a result of any recent trauma. It must be rare.

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[1] Boston Medical and Surgical Journal, 1900, Vol. cxliii, p. 111.

In conclusion I can only say that in cases of any difficulty, this nerve seems to me the most reliable single landmark at the elbow. Curiously enough, its value in this sense seems not to have been brought to the attention of the profession.

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Medical Progress.

PROGRESS IN PATHOLOGY.

BY JOSEPH H. PRATT, M.D., BOSTON.

THE BLOOD PRESSURE IN DISEASE.

Geisböck[1] made a large series of blood pressure observations in Müller's clinic in Munich. The investigation was begun with the object of determining the influence of some therapeutic procedures, including diet and exercise, upon the blood pressure. Gärtner's tonometer was the instrument chiefly employed, but control determinations were made in some cases with the Riva-Rocci apparatus. In healthy men the blood-pressure as registered by the Gärtner instrument is 80 to 120 mm.

In tuberculosis the blood pressure is near the lower limit of the normal or distinctly below it. Sometimes it fell as low as 60 mm. In the majority of cases the blood pressure ranged between 70 and 90 mm. Dyspnea and nephritis which ordinarily produce a marked elevation of blood pressure have only slight effect when they occur in tuberculous subjects. Thus in two cases of pneumothorax in spite of dyspnea, there was no elevation of blood pressure. Even in cases of phthisis in which the involvement of the lung was slight the blood pressure was low. The sinking of the blood pressure is probably toxic in origin. A fall of from 15 to 40 mm. occurred after the injection of tuberculin. The depression of the blood pressure lasted from two to six days. In some cases, in which after the tuberculin injection no elevation of temperature occurred, there was a drop in the blood pressure.

In severe cases of pneumonia the blood pressure was low. Caffein and digitalis produced no elevation of blood pressure in pneumonia. In one case it sank lower after the administration of caffein. Alcohol in therapeutic doses was without influence on the blood pressure in this disease.

In typhoid fever, the blood pressure varied from 70 to 90 mm. An ice bag on the abdomen produced regularly a rise of 10 to 20 mm.

In a case of acute nephritis due to sublimate poisoning the blood pressure reached 120 within twenty-four hours of the onset and rose to 150 on the sixth day of the disease. Fatal uremia supervened and the blood pressure slowly fell to 60 mm. A rise in blood pressure took place within the first few days after onset, in four cases of acute hemorrhagic nephritis observed during an influenza epidemic. The greatest rise in blood pressure occurred in chronic nephritis, especially in the different forms of granular kidney. The blood pressure was usually most elevated at the time of admission to the hospital, and the favorable effect of rest was followed within a few days by a fall of blood pressure. Sweat baths, purges and venesection produced a temporary drop in blood pressure.

In some cases presenting difficulties in diagnosis a high blood pressure points to Bright's disease. Pyelitis and pyelonephritis do not cause any elevation of the blood pressure. A pelvic tumor in one case compressed both ureters and led to hydronephrosis of one kidney and atrophy of the other. In spite of the great diminution of the renal tissue of both kidneys there was no rise in blood pressure. In acute nephritis of typhoid fever and of septic conditions the blood pressure was found not only not increased but surprisingly low. In one case during the last week of life it was 50 mm. An alcoholic with insterstitial nephritis was admitted with acute but severe pulmonary tuberculosis. When first seen the blood pressure was high but it fell as the tuberculosis developed. The influence of tuberculosis in lowering blood pressure was, in this case, stronger than the pressure elevating power of the nephritis.

Moderate exercise, such as lifting weights or climbing stairs, produced some increase of blood pressure in healthy individuals. When there was slight circulatory disturbance then a marked rise in the blood pressure, even to double the normal or more, resulted. With more marked cardiac insufficiency slight bodily activity, such as sitting up in bed, produced a greater rise than did considerable physical exertion in health. A fall of blood pressure during exercise occurs when a still higher degree of cardiac weakness exists.

Excess in drinking or smoking produces a transitory disturbance of the circulatory system in healthy persons which is shown by a marked rise of blood pressure after exercise. A similar temporary instability of the blood pressure occurs during convalescence from acute infectious diseases.

Coffee, tobacco and alcohol produced in health a slight rise in blood pressure. In individuals with an unstable vasomotor system the elevation of blood pressure is more pronounced and may be produced by an ordinary meal. Psychical stimulation caused a sharp rise of blood pressure in nervous persons. In some individuals of this class the blood pressure is persistently high. Geisböck reports a case in which it was about 160 mm. continually. There were no signs of kidney disease. Paroxysmal elevation of the blood pressure occurred in neuroses of various sorts, particularly traumatic neuroses. As Romberg has pointed out, this tendency to paroxysmal elevation of blood pressure in neurotic individuals may be an important etiological factor in the development of arteriosclerosis. In cases of myocardial disease with considerable disturbance of compensation the blood pressure was high.

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[1] Deutsches Archiv fur klin. Med., lxxxiii, p. 363.

Disappearances of edema led to a fall of the blood pressure.

Severe sclerosis of the thoracic aorta was repeatedly observed at autopsy in cases in which the blood pressure had been normal. In two cases of angina pectoris a marked but transitory elevation of blood pressure occurred during the paroxysms. In one attack, a rise to 210 mm. was observed. Albuminuria in a gouty subject was not associated with an increase of blood pressure. In cases of aortic insufficiency the systolic blood pressure varied between 105 and 135.

Disturbances of compensation were frequently associated with an elevation of the blood pressure. A fall was very uncommon, and more frequently indicated a gain than a loss in the circulatory power. *In some cases of heart disease, after the administration of digitalis* there was a slight rise of blood pressure; in other cases the blood pressure was normal or diminished.

Withdrawal of ascetic fluid led in one instance to a drop of the blood pressure from 220 to 110. Chloral hydrate produced little or no fall of the blood pressure. There was no definite lowering of the blood pressure by amylnitrite, nitroglycerin or the continued use of iodine or iodothyrin.

Geisböck observed 17 cases of polycythemia, associated with hypertonicity. In about half of these cases albuminuria was present.

METABOLISM IN OSTEOMALACIA.

Limbeck and Naumann each found in metabolism experiments on subjects of osteomalacia that the body lost calcium in this disease. A recent and more complete investigation by Goldthwait, Painter, Osgood, and McCrudden[2] confirms this discovery. Their studies were made on a young girl of sixteen, the subject of well marked osteomalacia. The first observations covered a period of eight days. The metabolism technique employed was that devised by McCrudden. The patient was allowed to eat what she chose. Solid food was cut into small bits and well mixed. The patient received a certain weight, and the same weight was taken for analysis. Liquid food was thoroughly mixed, and a volume equal to that consumed by the patient was likewise saved. All the food taken for analysis was mixed together, evaporated to dryness on the water bath, ground to a fine powder, and thoroughly mixed. Analyses were made in triplicate. The first experiment showed that much of the sulphur taken in the food was retained: in fact, 63%. There was a considerable loss of calcium, amounting to 24%, and a slight retention of nitrogen and magnesia. Calcium was excreted chiefly in the urine, and the magnesia in the feces, instead of in the urine. This is the reverse of the normal. In health only 0.12 to 0.18 gms. of calcium are excreted daily in the urine. In this case there was from 0.10 to 0.65 gms. After the first period of study the ovaries of the patient were removed as a therapeutic procedure. A second set of analyses made a few months later showed the beneficial effect of castration. There was a striking difference in the metabolism. The daily excretion of sulphur was found to be decidedly greater. The daily output of calcium was lower than before but still considerably above the normal. While the first period showed a loss of 24% of calcium by the organism, in the second there was retention of 28%. That the bones in osteomalacia are poor in inorganic material has long been known. Normal bones contain from 34% to 44% of organic material and from 56 to 66 of inorganic material.

They conclude, as a result of this work, that in osteomalacia there is at first a decalcification of the bony tissue, and then a replacement of the inorganic material of the bone by organic osteoid tissue. Although some magnesia takes its place, the calcium is probably chiefly replaced by an organic substance that is rich in sulphur and poor in phosphorus.

PATHOGENESIS OF PERNICIOUS ANEMIA.

Bunting[3] found cells of the megaloblastic type in the bone marrow of man as well as in the marrow of all the common laboratory animals. This is in opposition to the statement of Ehrlich but agrees with the views of Engel, Pappenheim and others. Bunting described a definite arrangement of both leucocytic and erythrocytic cells of the marrow in nests and groups. In the erythrocytic groups the megaloblasts formed the proliferating center while the myelocytes occupied a similar position in the leucogenetic groups. Surrounding the megaloblasts were smaller nucleated red cells, with vesicular nuclei. Beyond these were normoblasts with pyknotic nuclei, and at the extreme periphery mature red cells. From the division of the megaloblastic cells either megaloblasts or smaller, intermediate, nucleated red corpuscles are formed. From the cells of the intermediate type normoblasts are produced. These lose their pyknotic nuclei by absorption and form the mature, nonnucleated red cells.

From recent experiments, he concludes that in hemorrhage the loss of circulating red corpuscles is met by the marrow supplying mature erythrocytes which lie close to the capillaries at the periphery of the erythrogenetic groups. If the hemorrhage is large, the number of mature red cells are exhausted, and a certain number of normoblasts pass into the circulation to supply the deficiency. A circulating toxin destroys not only the red cells of the circulation but of the marrow as well. The marrow responds by discharging nucleated red cells either of the normoblastic or megaloblastic type. If the toxin is strong it may destroy the entire normoblastic layer of the erythrogenetic groups, in which case great numbers of megaloblasts will appear in the circulation. After producing severe hemorrhages in rabbits only a few normoblasts were found in the peripheral circulation. The highest number was 16 normoblasts to the cubic millimeter. The result of circulating toxins was very different. The blood of one rabbit which had received a lethal dose of ricin showed, twenty-four hours afterwards, 1130 normoblasts, 603 naked pyknotic red-cell nuclei, and 335 megaloblasts per cubic millimeter. Small doses yield after a time blood pictures quite similar to those seen in pernicious anemia. The erythrocytes show great variation in size; macrocytes are numerous; there is slight poikilocytosis, and there are some nucleated red cells. It seems possible that in pernicious anemia an analogous toxin may be present which destroys the red cells in the circulation and in the marrow, and, furthermore, acts upon the erythrogenetic group by destroying the cells of the outer layers, thereby greatly impairing the regenerating power of the marrow. As a result, megaloblastic cells are given off into the circulation in the hasty effort to supply its needs. Under this condition the megaloblast gives rise to the macrocyte, an imperfect, immature cell as shown by its polychromatophilia and granular basophilia. This theory offers a simple explanation of the fact that cases of pernicious anemia with few normoblasts and many megaloblasts are more severe than those with large number of normoblasts and few megaloblasts.

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[2] American Journal of Physiology, 1905, xiv, p. 389

[3] Johns Hopkins Hospital Bulletin, xvi, p. 222.

A STUDY OF HIS'S BUNDLE.

Keith and Flack[4] have studied the auriculo-ventricular bundle of His in over 130 human hearts. They are convinced that it is a constant structure and state that it can be readily dissected out in a properly prepared heart. For minute study microscopic sections are necessary. Hearts of nearly every mammalian order were examined, and in all the auriculo-ventricular bundle was found to have the same situation and the same distribution as in man. They have carefully studied the ramifications of the auriculo-ventricular bundle and have confirmed the work of Tawara. The distribution of the branches of the bundle can be studied best in the heart of the calf, as in no other mammal is this system of fibers so plainly seen. The muscle fibers of the bundle are pale red in color, much paler than the surrounding musculature.

The auriculo-ventricular bundle arises in the annular and septal fibres of the right auricle. In the calf's heart it passes from the central cartilage and enters the inter-ventricular septum. After a short course (one centimeter) it divides into right and left septal divisions. The right septal division runs forward on the septal wall of the right ventricle and passes through the moderator band finally reaching the anterior group of musculi papillares and the lateral wall of the ventricle. The ramifications of the auriculo-ventricular band, but not the main bundle, are composed of Purkinje fibres. A section across the moderator band reveals Purkinje fibres in three or four bundles. Connective tissue sheaths separate these bundles from the remainder of the moderator band. Beneath the endocardium of the ventricle there is a fine network of Purkinje fibers. Branches of the left septal division pass to all parts of the left ventricle. In the human heart the bundle of His begins in the annular fibres of the right auricle. It passes forward within the lower margin of the membranous part of the septum, and divides into a right and left septal branch. The latter is clearly seen as it forms a wide subendocardial fillet on the septal wall of the left ventricle. Fibers of this system which pass to the musculi papillares frequently form free or moderator bands as in the heart of the sheep and ox.

The authors carefully studied the central fibrous body, which is the strong tendon that unites the left ventricle and the root of the aorta. The auriculo-ventricular bundle is intimately connected with the central fibrous body, and they found that it was here that the continuity of His's bundle was usully broken by disease. Both cusps of the mitral valve and the anterior group of the papillary muscles pass into it. Attached to it also is the musculature of the interauricular system. The central fibrous body is a structure upon which continual strain is thrown. In cases in which the blood pressure is high, the strain is greatly increased and then sclerosis is more likely to occur. Extension of the sclerosis or spread of an inflammatory process from the mitral valve is likely to injure the bundle of His within the central fibrous body.

The auricular network from which the bundle arises and the main bundle itself are composed of narrow elongated muscle cells with striations not as clearly marked as in the rest of the musculature. The cells strain less deeply. Nuclei are more numerous. The terminal branches are made up of Purkinje fibres. The characteristic features of these fibres are better seen in the sheep's heart than in the human heart. They are very large, and composed of pale cells. The greater part of the cell body is undifferentiated protoplasm; only the peripheral portion is striated. The Purkinje system of fibres is not increased in hypertrophy of the heart or diminished in atrophy.

The auriculo-ventricular bundle was found to be differentiated and relatively large in the heart of the human embryo of 45 mm. length (11 weeks).

Two cases of heart block were studied pathologically. In one case the bundle was found partially obliterated in the central fibrous body of the heart. In the second case the bundle was involved within a gumma of the septum. In two hearts in which Dr. J. Mackenzie of Burnley had observed irregularity in the auriculo-ventricular rhythm, Keith and Flack found His's bundle largely replaced by fibrous tissue.

The author's observations support Tawara's theory that the Purkinje system of fibers is for the conduction and distribution of the auricular impulse within the ventricles.

Gaskell, in 1883, was the first to show that injury of the muscle at the auriculo-ventricular junction of the heart caused the auricles and ventricles to contract independently. He noted that the auricular rate was more rapid than the ventricular. Stanley Kent, ten years later, discovered a muscular connection between the auricle and ventricle in the mammalian heart. This muscular bundle was more accurately described by William His, Jr. Injury to this auriculo-ventricular bundle blocks the impulse to ventricular contraction which normally passes through it from the auricle. The condition of heart block has been produced on mammals by His and Graufner, Tigerstedt, Erlanger and Hering. Their experiments seem to indicate that the Adams-Stokes syndrome is due to heart block.

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[4] Lancet, Aug. 11, 1906, p. 359

Stengel [5] in December, 1905, reported the first case in which a connection between the Stokes-Adams' syndrome and a lesion of His's bundle was demonstrated. Clinically it was a typical case. The ventricular pulse rate ranged from 18 to 26, while the auricular pulse was 80 to 140. Syncopal and epileptiform seizures occurred. At the autopsy a sclerotic patch was found on the anterior mitral valve which by extension had involved the bundle of His.

Erlanger [6] concludes from his experiments that in the dog, the impulse which normally causes the ventricles to contract is conducted through the auriculo-ventricular bundle of His. By compression of this bundle all stages of heart block may be obtained. These include:

(*a*) An increase of the intersystolic pause. (*b*) An occasional ventricular silence. (*c*) Regularly recurring ventricular silences, *e.g.*, one silence in ten, nine, eight, seven, six, five, four, three and two auricular beats. (*d*) A 2: 1 rhythm. (*e*) A 3: 1 rhythm. (*f*) Complete heart block.

When complete heart block is established, stimulation of the vagus nerve has little or no effect upon the rate and force of the ventricular beats whereas the auricles still react normally. With complete heart block, stimulation of the accelerator nerve increases the rate both of the auricles and the ventricles.

All of the cardinal symptoms of Stokes-Adams disease may be duplicated by heart block resulting from a lesion in or near the auriculo-ventricular bundle of His, and by this alone. No typical case of Stokes-Adams disease has been described in which the heart block might not have been the cause of the trouble. It can be shown that all cases of Stokes-Adams disease which have been studied by sufficiently accurate methods are cases of heart block. It would appear that heart block with syncopal attacks and heart block without syncopal attacks are two stages of the same disease process.

An increase in the length of the intersystolic period, together with occasional ventricular silences, will probably be found to be the earliest sign of beginning of Stokes-Adams disease. In order to make the diagnosis of heart block it is necessary to show that the ventricles fail more or less regularly to respond to one or more of the regularly recurring auricular impulses. The most certain method of arriving at a correct diagnosis consists in making tracings of the apex beat, the jugular pulse and the arterial pulse. If two perfectly regular rhythms can be distinguished in any one of these tracings a diagnosis of heart block may be made.

THE SO-CALLED HEMI-SYSTOLE.

Leyden in 1868 and again in 1875 called attention to a doubling of the apex beat of the heart in certain cases. Two beats were seen at the apex and only one arterial wave felt at the wrist. He explained this phenomenon as due to non-simultaneous contraction of the ventricles, and applied to this condition the term hemisystole. Riegel regarded the double apex beat as the result of two cardiac contractions occurring in quick succession; each group of two contractions being separated from the next group by a longer pause.

Hetsingius [7] has studied two cases in the medical clinic at Kiew, which seem to prove the correctness of Riegel's view. The second contraction of the *Bigeminie* is the result of a premature systole after a shortened disatole. The second systole is usually weak but sometimes strong, and then the arterial wave it produces can be seen in the sphygmographic tracings. The second systole is what Engelmann terms an extra-systole. The earlier in diastole the accessory stimulation acts the weaker the extra-systole. There is a period beginning just before the systole and ending shortly after the systole, during which the heart muscle will not react to artificial stimuli. This is the so-called refractory phase. The excitability, the power of conduction and the contractility gradually increase during diastole.

THE DETECTION OF MINIMAL AMOUNTS OF BLOOD IN THE FECES.

A number of improvements have been recently made in the methods of detecting traces of blood in feces. Rossel showed that both the guaiac and aloin tests were more delicate if fat were first removed from the feces. V. Kozickowsky extracted hydrobilirubin and other coloring matter from the feces as it was found that they sometimes interfered with the test, He did this by treating the stool with alcohol before adding the ether. O. and R. Adler introduced the benzidin test, which is so delicate that blood can be detected when diluted with 100,000 parts of water. Schumm has found the benzidin test " too subtle " for clinical purposes, and Boas has come to the same conclusion. Schumm found that the test was still positive eight or ten days after eating meat. The benzidin test has been modified by Schlesinger and Holst,[8] and they claim that their method is better than any previously proposed. It is simpler and yet more delicate than the aloin or guaiac tests. Any oxidizing ferment that might give the same reaction as blood is destroyed by heat. There is no chance of error through impurity of reagents or glass-ware escaping notice.

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[5] American Journal of the Medical Sciences, 1905, cxxx, p. 1083.

[6] Journal of Experimental Medicine, 1906, viii, p. 8.

[7] Deutsche medizinische Wochenschrift, Aug. 30, 1906, p. 1406.

[8] *Ibid.*, Sept. 6, 1906, p. 1444.

The test is performed as follows:

(1) As much benzidin puriss (Merck) as can be taken up on the end of a knife is placed in a carefully cleaned test-tube and 2 cc. of glacial acetic added. Shake the tube a few times and place aside.

(2) A small bit of feces about the size of a pea is picked up with a clean glass rod and placed in a test tube one-fifth filled with water. The feces and water should be well mixed by means of the glass rod. Close the tube with a plug of cotton and heat to the boiling point.

(3) Place in a perfectly clean test-tube ten to twelve drops of the benzidin-acetic acid mixture and add 2.5 to 3 cc. of a 3% hydrogen peroxide solution.

(4) Add one to three drops of the boiled fecal suspension (2) to the completed reagent (3). If blood is present the fluid will turn a green or blue. The greater the amount of blood the deeper the blue color.

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Reports of Societies.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

Meeting of Jan. 19, 1906.

Dr. Frank B. Sprague read a paper on

OBSERVATIONS IN ONE THOUSAND ADENOID OPERATIONS.

DISCUSSION.

Dr. Richards: I would like to disagree with the writer on one point. As far as general condition and methods of operation are concerned no one has any objection to make; it is simply a matter of removing the adenoids; every man has his own individual way; but with reference to the examination for determining their presence, I think the examination with the finger is most valuable; you get information in that way you do not get in any other. The only difficulty is a little point in technique. I think I was the first to describe this method, some five years ago. When properly done it causes very few children to cry when they are examined, and is not especially disagreeable.

Seat the child in the lap of a nurse who looks out for his feet and hands; protect the forefinger of the right hand by means of a sterile finger cot; show the child the cot-covered finger and explain to him that the finger nail is not going to hurt him; put the left arm, in the hand of which is held a tongue depressor, around the child's head, and asking the child to open the mouth while you feel for a moment in his throat; slip the edge of the handle of the tongue depressor as far back along the teeth as possible, and, at the same moment, introduce the forefinger of the right hand into the mouth. Depressing the tongue at the base you touch the tip of the uvula and quickly slip the forefinger behind it and carry it up into the naso-pharynx. The finger is then carried over all the area as far as the vault, into each choana, into the fossa of Rosenmüller, around the mouths of the Eustachian tubes and withdrawn. The whole procedure takes but a few moments, while the character of the growth, its density, extent, position and form have all been quickly determined. A little bleeding may follow but this is momentary. The child may cry for a moment, but in the majority of instances they do not even do that. I do not find that the finger-cot, if thin, interferes with the tactile sensibility to any extent.

Dr. H. P. Mosher: I am very much obliged to Dr. Sprague for his paper. I wish to thank him also for coming to the Massachusetts General Hospital a little while ago and demonstrating to us the lateral position for removing adenoids. Up to that time I had known this position only through the literature. In the upright position the fossa of Rosenmüller is not as accessible as one would like. It is not directly in line with the operator as the vault of the pharynx is, but more or less round a corner. For this reason I have often been unsatisfied with my method of dealing with it. In the lateral position, however, the fossa of Rosenmüller is directly below the examining finger or directly above it, as if there were two extra vaults. The finger can now explore them just as directly as it can the roof of the pharynx. With the finger as a guide the forceps can be used here with effect and without danger to the cartilage of the Eustachian tube or the opening of the tube. With forceps in the upright position these two structures are in danger. In cases where deafness is the chief symptom I shall adopt in the future the lateral position.

Dr. J. W. Farlow: The diagnosis of adenoid disease by the finger is often made, we might almost say, before the finger is passed; that is to say, a child with certain symptoms, possibly due to adenoid disease, is brought to the doctor, who makes a digital examination; but who ever heard a doctor say there was no adenoid in such a case? It is not an easy matter to determine by digital examination the presence or amount of adenoid disease in a hurried examination of a struggling child. The finger should be educated by practice on normal as well as on diseased post-nasal spaces so that the absence as well as the presence of adenoid disease may be more accurately determined than I think is the case at the present time.

In attempting a rhinoscopic examination of a child, in case a good view of the vault is not to be had, it may be of some value to pass the small mirror up behind the soft palate to the vault, thus getting a certain amount of information as to the contents of the post-nasal space in the way one would use a probe. The small shank of the mirror takes up but little room and causes almost no pain. By using a little cocaine or adrenaline in the nose we are often able to see through one or the other nostril as far as the posterior pharyngeal wall and can thus determine whether adenoid masses are present.

Parents are often surprised when told that a child has adenoids when mouth-breathing symptoms are absent. If the nose turns up, or the nostrils are large and the turbinates small, there may be considerable adenoid present, especially if it is on the posterior pharyngeal wall, without there being mouth breathing.

In using the forceps it is often well to start at the bottom of the growth and loosen it from below up, thus gradually detaching the mass in such a way that it can nearly all be removed at one bite without tearing the mucous membrane.

The youngest child I have operated on was three months old, and the oldest person was fifty-one years.

Dr. Sprague: I have nothing more to say, Mr. President, except that my only point in all my surgery is not to do anything that is unnecessary and that is distasteful and discomforting to the patient; and that is why I do not use my finger in the examination, because I think you can make a very good diagnosis with these other methods I have mentioned.

I was very much interested in hearing, a few weeks ago, in the New York Academy of Medicine, in the Laryngological Section, the report of an operation for adenoids in a man of sixty three years of age.

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THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting, Held at Cleveland, Ohio, May 31, June 1 and 2, 1906.

(Concluded from No. 13, p. 350.)

ELEPHANTIASIS OF THE PENIS AND SCROTUM AS A RESULT OF SYPHILIS.

Dr. A. Ravogli, of Cincinnati, Ohio, reported this case, which confirmed the views of Hill that elephantiasis in this country was not of very rare occurrence, and was more frequently found among the colored race. It was only sporadic, with no relation to filiariasis, and in the few cases which had been under his observation, syphilis was at the bottom of the affection. He called attention to the fact that even in countries where elephantiasis was endemic, other etiological factors than filiariasis, such as trauma, and above all, syphilis, were important causative elements.

Dr. Martin F. Engman, of St. Louis, said that in the negro race, elephantiasis not uncommonly complicated tuberculosis, eczema, erysipelas and other conditions, especially after syphilis, and was due, no doubt, to the pronounced tendency shown by members of that race to connective tissue proliferation.

Dr. Ravogli, in closing, said he was not prepared to accept the theory that the plasma cells came from the leucocytes. He was rather inclined to believe that they were the result of proliferation of the connective tissue cells, which by vegetation or proliferation produced these enlarged cells.

THE DEVELOPMENT OF SUCCESSIVE INITIAL SYPHILITIC LESIONS, AND THE PATHOLOGY OF SYPHILITIC INFECTION.

Dr. Robert W. Taylor, of New York, read this paper, and reported a number of cases coming under his observation in which there were a number of successive initial syphilitic lesions. For many years, he said, the solitary character of the syphilitic lesion was claimed, and was generally accepted. In the course of time, however, this dictum was disputed, and it was conceded that the evolution of syphilis in some cases began by the appearance of several lesions, but even then the number was restricted to two or three. With advancing study and observation our ideas of the multiplicity of the syphilitic chancre had greatly expanded, so that we now recognized the fact that it was not uncommon to see from three or four to thirteen or fifteen lesions. It had further been shown by reliable statistical facts that in about 25% of all cases of syphilitic infection, the initial lesion was multiple. Some authors admitted that successive chancres might occur as late as the twentieth day after infection, while a minority claimed that such re-infection was impossible, since at that time the entire organism had been infected, and thus been rendered immune. In clinical practice, the occurrence of successive chancres might be due to simultaneous or later infections from a single source, and these might be called cases of auto-infection. In some cases there was a strong probability of secretions derived from another syphilitic individual, so that the victim was poisoned from two sources. These cases, therefore, might be termed instances of hetero-infection.

Dr. Hermann G. Klotz, of New York, said it was necessary to differentiate between successive chancres and coaptation chancres.

"WHITE SPOT DISEASE" (MORPHEA GUTTATA) AND LICHEN PLANUS ET ATROPHICUS, A CLINICAL AND HISTOLOGICAL STUDY OF THREE CASES, WITH A REVIEW OF THE LITERATURE.

by **Drs. Frank Hugh Montgomery** and **Oliver S. Ormsby**, of Chicago, Ill.: The paper contained the further report of a case which was shown before this association in Chicago in 1901, and in whom some of the white spots eventually became typical morphea lesions. A similar case was also reported, in which the white spots on the upper part of the body were accompanied by areas of scleroderma on the leg. Also a case of lichen planus sclerosus et atrophicus, which was included because of its striking resemblance to the white spot disorder, and also to morphea, and because by many this form of lichen planus was not yet recognized as a distinct clinical type. The object of the paper was to present a clinical and histological study of these cases, together with data from the literature, in the hope of contributing to the solution of the question whether the above named conditions should be recognized as clinical entities, or should be considered unusual types of morphea or local scleroderma

LYMPHANGIOME CIRCUMSCRIPTUM.

Dr. S. Pollitzer, in this paper, reported in detail two such cases that came under his observation and gave a histological and clinical description of the appearance of the growths. He stated that tumors of the lymphatics belonged to the rare pathological manifestations, those appertaining to the superficial layers of the skin constituting clinically one of the rarest of all skin diseases.

Dr. William T. Corlett, of Cleveland, said that at the meeting of the association in Princeton about seven years ago he reported two cases, one of lymphangioma circumscriptum, and the other of linear nevus. In the latter case, the pathological examination showed an apparent obstruction and dilatation of the lymphatic vessels.

Dr. Charles J. White, of Boston, said he could recall at least four cases of lymphangioma circumscriptum, and he did not regard it as a rare disease. The most remarkable case he had seen was in the skin ward of the Massachusetts General Hospital. The patient was a woman who had been troubled for some months with a flow of straw colored lymph from an abdominal wound which had been made by a surgeon who had opened the abdomen for exploratory purposes. The surgeon came down upon a large mass, and thereupon had closed the wound and had given a hopeless prognosis. The lesion for which the operation had been done was a typical lymphangioma circumscriptum, and the discharge from the wound was so free that a bath-towel would become soaked with lymphatic fluid in the course of a few hours. Under cauterization, the flow largely ceased.

Dr. Hartzell thought most of these cases might be designated hemolymphangioma, as there was a collection of blood-vessels in most of the lesions.

AN ANALYSIS OF SIXTY-SEVEN CASES OF BULLOUS DISEASES OF THE SKIN.

Dr. William T. Corlett, of Cleveland, Ohio, after referring to the difficulty of classifying bullous dermatoses, briefly analyzed 65 cases that had come under his observation. These included 20 cases of pemphigus, 7 cases of pemphigus foliaceus, 2 cases of so-called pemphigus of the new-born, 15 cases of impetigo bullosa, 2 cases of dermatitis bullosa, 12 cases of dermatitis perpetiformis, 3 cases of epidermolysis bullosa hereditaria; 1 case of urticaria bullosa, and 5 cases of pompholyx. Dr. Corlett said that while he believed the clinical groups of this class of affections were sufficiently distinctive for ordinary diagnostic purposes, yet hard and fast lines could not at this time be drawn between them. There were in each group many cases which conformed to the type, but at the same time a large number presented departures from the standard which rendered it in many instances a matter of personal opinion as to what group they belonged.

General Discussion.

DIET IN DISEASES OF THE SKIN.

(*a*) *As an Etiological Factor.* — **Dr. Henry W. Stelwagon**, of Philadelphia, Pa., in discussing this phase of the subject, said we knew that certain foods were toxic in some individuals, these constituting the so-called idiosyncrasies. In others, the eruptive phenomena, while not to be attributed directly to the food itself, resulted from overeating, thus giving rise to indigestion, crowding the eliminative organs, and resulting in faulty metabolism. In others, but more especially in those having a cutaneous disease tendency, underfeeding, as well as improper feeding and overfeeding, might be the deciding factor that called forth the eruption. Further, in many cases, the evil effects were not due to the foods themselves (if in good and fresh condition), but to the toxic and putrefactive changes which they had undergone before or immediately after their consumption. Finally, the possibility of chemical preservatives and not the food itself being the etiological element in some of these cases should not be wholly disregarded.

(*b*) *As a Therapeutic Measure.* — **Dr. George H. Fox**, of New York, discussed the subject from this standpoint. In the first place, he laid great stress upon the importance of careful regulation of the diet in the treatment of all inflammatory affections of the skin, which included all those skin diseases in which the congestive element was present to a greater or less degree. While diet could not be expected to cure lupus, syphilis, or malignant disease, it certainly improved the condition of the patient, and modified the local conditions to a slight extent, and hence might prove of service in nearly all classes of skin diseases. While every physician professed to believe in the efficacy of diet in the treatment of disease, very few were inclined to practice what they preached. The speaker also emphasized the fact that the majority of our patients, and those who were likely to become our patients, were in the habit of eating too much. While it was true that some suffered from malnutrition and needed to be better nourished before their skin disease could be radically cured, it was also true that even these patients could be benefited by a temporary restriction of diet. For every patient suffering from an inflammatory skin disease who was eating too little and suffering from lack of nourishment, there were a score who were eating far more than they actually needed, and thus feeding the eruption.

Dr. Fox expressed his firm belief that an excess of nitrogenous food was prejudicial to the health of both mind and body. It was without doubt the cause of many of the ills which were formerly ascribed to malaria, and now commonly attributed to uric acid excess. He always claimed that a change of diet was of great advantage, even if it was from a theoretically good diet to a commonly considered bad diet. A change must be made in the patient's manner of living in many cases of skin disease; otherwise the wisdom of the physician, with the assistance of the apothecary, would prove of little avail. The character of the food in the treatment of cutaneous and other diseases was of less importance, perhaps, than the manner in which the food was taken. It was not what the patient ate so much as it was how and when and under what circumstances he ate that tended to the production of an inflammatory condition of the skin. Hasty eating, irregular eating and meals under taken the stress of excitement and worry were the daily experiences of many of our patients, both rich and poor.

In connection with this subject of diet, Dr. Fox said he could not refrain from referring to those two therapeutic handmaidens, exercise and cold baths. Diet, exercise and bathing constituted the tripod of every trainer, restoring health, imparting strength and inspiring energy.

Dr. George T. Jackson laid great stress upon simplicity in diet, and he thought that many of our troubles came from eating too many different kinds of foodstuffs at the same time. The usual *table d'hote* dinners gave the stomach too great a variety to work on. He had no doubt about the influence of tobacco, coffee and tea in the production of pruritus; the worst cases of that affection he had seen were in persons who smoked to excess. In regard to eczema, he had found that certain individuals suffered from this affection during certain seasons of the year, and that it was due to certain foods that were on the market at such times.

Dr. William F. Breakey mentioned the chewing gum habit as one of the factors which might have some bearing upon the proper digestive functions, as it was very common and caused a waste of saliva.

Dr. James M. Winfield, of Brooklyn, said the gist of the whole matter was summed up in one of the statements made by Dr. Stelwagon, namely, to try to find out what your patient could assimilate, and thus avoid clogging up the intestinal canal with a large collection of waste material. Another point was to drink plenty of water. The average individual did not drink enough water, not necessarily with meals, but between meals.

Dr. William A. Pusey, of Chicago, referred to the tendency to cut down the diet of growing girls with the idea that they were eating too much, while as a matter of fact, they were under-fed.

Dr. Corlett said that the directions usually given in regard to diet were too general, and failed to apply to the individual case. In order to ascertain the dietetic errors or deficiencies, one must be specially equipped for making an analysis of the stomach contents. What was one man's meat was another man's poison, and no one rule could be laid down to apply to all cases.

Dr. Burnside Foster said he had always thought that the arrangement of the diet of his patients was a most important part of the treatment, particularly in the inflammatory type of skin diseases, and in that connection the personal equation should never be lost sight of. He was inclined to agree with Dr. Fox that it was a good idea to learn what your patient was in the habit of eating, and then make just as radical a change as possible. Diet was a good deal like climate: people wanted something different from what they had been accustomed to.

Dr. Frank H. Montgomery, of Chicago, said there was a certain type of nervous women and girls, and also some men, who were in the habit of eating when they were tired out, or hurried or worried, and he could recall cases where he had been able to control mild attacks of rosacea in this class of patients by instructing them to take a short rest before meals, and then eat quietly, and masticate their food thoroughly.

Dr. Hermann G. Klotz, of New York, said that so far as he knew, psoriasis was common in all countries, civilized and uncivilized; the same was true of eczema, in spite of the various forms of dietary indulged in. Both diseases apparently affected people who lived in entirely different ways and under different conditions.

Dr. Fox, in closing, said he had always maintained that water was the best and cheapest remedy in the pharmacopeia, and when taken freely between meals, and in moderation with meals, it would take the place of laxatives and increase the elimination of toxic substances.

MULTIPLE CANCER OF THE SKIN AND KERATOSIS FOLLOWING THE LONG-CONTINUED USE OF ARSENIC: MULTIPLE ULCERATIONS OF THE SKIN AFTER THE PROTRACTED USE OF THE SAME DRUG.

Dr. Jay F. Schamberg, of Philadelphia, Pa., read this paper, in which he reported in detail the history of a case of multiple epitheliomata in a man who had taken Fowler's solution at intervals during a period of twenty-five years. Among other lesions, he presented a large nodular cancer on the leg, which was not hyperkeratotic. Dr. Schamberg also reported a case of multiple persistent ulcerations of the leg in a woman who had taken arsenic continuously for four and a half years.

Dr. Frank H. Montgomery, of Chicago, said he was in entire accord with the statement made by Dr. Schamberg that the average physician was not sufficiently well acquainted with the dangers of administering arsenic. He could recall a number of instances where more or less serious results followed the injudicious use of the drug.

Dr. M. B. Hartzell, of Philadelphia, said that of the immense number of cases of keratosis that occurred in various diseases, particularly in psoriasis, it was remarkable that this epitheliomatous degeneration should occur only in those instances where the patients had been subjected to the long-continued use of arsenic. Personally, the speaker said, he believed that in some way the arsenic disturbed the cell growth, and was directly responsible for the development of the cancer.

Dr. Schamberg, in closing, said it seemed to him a juggling of terms to say that arsenic was not directly responsible for cancer in these cases. The mere fact that there was an intervening hyperkeratosis did not relieve arsenic of the responsibility of the production of the malignant disease.

A CONTRIBUTION TO THE HISTOPATHOLOGY OF SOME DRUG ERUPTIONS

by Drs. M. F. Engman and W. H. Mook, of St. Louis, Mo. The observations contained in this paper were based upon a study of the iodine and bromine eruptions, and the following conclusions were offered: (1) The local eruptive phenomena were prone to occur at points of previous inflammation; about comedones, acne lesions, seborrhoic lesions, scars, traumata, scratches, etc. (2) Traumata, pressure or rapid temperature changes might precipitate an eruption in tissues charged with the drug. (3) Idiosyncrasy or susceptibility were factors here, as in other toxic conditions. (4) The glands or follicles of the skin took no active part in the production of the lesions, and when they were involved, it was secondary and passive to inflammatory changes about the vessels and in the connective tissue. (5) The gross histological changes in the skin consisted in different degrees of inflammation, from slight changes about the vessels to destructive abscess formation and progressive death of tissue. In their further conclusions, Drs. Engman and Mook described the minute histological changes that led to the formation of these lesions, and stated that this theory might be termed the "rational theory," as it explained all the symptoms of ioderma and bromoderma in a purely rational, chemical and mechanical manner, and did not depend in its elucidation upon the mysterious and purely theoretical action of the vaso-motor system.

Dr. Jay F. Schamberg, of Philadelphia, said the theory advanced by Dr. Engman was not only plausible, but was confirmed by clinical facts in connection with certain diseases. For example, in smallpox an increase in the vascularity of any area of the skin would almost invariably determine the presence of an increased number of lesions in that area. A mustard-plaster applied to relieve the backache of smallpox would usually mark the site of a subsequent confluent eruption. In scarlet fever, the speaker said, the converse of this rule was true, as the areas where continuous pressure had been exerted, such as the garter regions, were usually free of the eruption.

VEGETATING DERMATOSES, WITH A REPORT OF TWO CASES.

Dr. William Allen Pusey, of Chicago, reported these two cases in detail, with histological findings, and compared them with similar cases reported under various names by Hartzell, Hallopeau, Wickham, Wende and Degroat and Perrin. He expressed the view that we had in these various cases of dermatitis with vegetations, essentially one process, and that a secondary one. The vegetations were not primary lesions, but were the result of secondary infection, with the consequent production of exuberant growth of both the connective tissue and the overlying epithelium.

REPORT OF A CASE OF PEMPHIGUS VEGETANS (NEUMANN)

by Dr. J. M. Winfield, of Brooklyn, N. Y. The patient was a Polish girl who was kept under observation at the Kings County Hospital, from Oct. 30, 1905, to May 5, 1906, when she died. From a study of the literature of the disease, together with the above case, Dr. Winfield adduced the following conclusions: (1) That some of the reported cases are not true examples of pemphigus vegetans. (2) That pemphigus vegetans is a distinct disease, and not related etiologically to the disease commonly known as "pemphigus." (3) That pemphigus vegetans is an infectious disease, running a definite course. (4) That the producing organism is not yet determined. (5) That this organism gains entrance into the body through the mucous orifices and abrasions of the skin. (6) That pathological changes in the kidneys, as evidenced by urinalysis and pathological findings, are not etiologically significant, but secondary.

PHAGEDENIC AND SERPIGINOUS ULCERS AND INFECTIVE GRANULOMATA.

Dr. William F. Breakey, of Ann Arbor, Mich., reported a case of this kind occurring in a man of twenty-six, who presented himself with a large, superficial sepiginous ulcer on the posterior surface of the right thigh. Beginning in an inguinal bubo, the phagedenic process had been going on in one direction, while repairing in others, for over six years, burrowing under the skin as it extended, and leaving patches of scar tissue blending with normal integument over a large part of the hip and thigh. The condition had been treated for syphilis, lupus and tuberculosis.

REPORT OF THREE CASES OF TUBERCULOSIS OF THE SKIN.

Dr. T. C. Gilchrist, of Baltimore, Md., reported a case of (*a*) primary tuberculosis cutis of the sole of the foot; (*b*) *erythème induré des scrofuleux* (Bazin), accompanied by subepidermal tubercular abscesses on the body; (*c*) a case of the follicular type.

INFECTIOUS DERMATITIS GANGRENOSA.

Drs. Grover W. Wende and Charles A. Bentz, of Buffalo, N. Y., reported such a case occurring in a man seventy years old. The condition was an infectious gangrene, first shown by a bullous eruption, changing to necrosis, variable in distribution and extent, and apparently originating through autoinoculation from a chronic leg ulcer. There was an absence of constitutional symptoms during the development of the skin lesions, but there was a secondary general infection and death from septicemia. In the bullæ and the gangrenous lesions, as well as in the internal organs at the autopsy, were found streptococci, staphylococci, diplococci and bacilli.

The final session of the meeting of theAssociation was devoted to the presentation of patients at the Lakeside Hospital.

Book Reviews.

Essentials of Prescription-Writing. By Bernard Fantus, M.D. Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons of Chicago, the College of Medicine of the University of Illinois, Professor of Materia Medica and Therapeutics, Jenner Medical College, Chicago. Chicago Medical Book Co. 1906.

In this small book of 136 pages the author has attempted to cover the essentials of prescription-writing. One chapter is devoted to the form and language of prescription, a second to the determination of qualities and includes a consideration of weights and measures and dosage under various conditions. A third section comprises a description of the various forms of medicine. Directions for the composition of prescriptions and prescription ethics also receive attention. The book fills a place not entirely occupied by any other and should prove useful to the student.

Blakiston's Quiz-Compend. A compend of Pharmacy. By F. E. Stewart, M.D., Ph.S., Charter Member of the American Therapeutic Society; formerly Lecturer and Demonstrator of Materia Medica and Pharmacy, Jefferson Medical College, Medico-Chirurgical College and Woman's Medical College of Pennsylvania, Philadelphia; Quiz Master in Chemistry and Theoretical Pharmacy, Philadelphia College of Pharmacy, and Chairman of the Section on Materia Medica and Pharmacy of the American Medical Association; Associate Editor of the *Therapeutic Gazette*; Eaitor-in-chief of Merck's Archives, etc. Based upon Prof. Joseph P. Remington's "Textbook of Pharmacy" and the United States Pharmacopeia, eighth revision (1905). Sixth edition, revised and enlarged, with a very complete index, and table for converting English measures into metric and the reverse. Philadelphia: P. Blakiston's Son & Co. 1906.

The compend is limited in its scope to the products and preparations of the United States Pharmacopeia. It contains much information in a condensed form and will prove useful to the student in the review of a more comprehensive course.

A Manual of Medical Treatment, or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London, Consulting Physician to King's College Hospital, Hon. Fellow of King's College, formerly Professor of the Principles and Practice of Medicine and of Clinical Therapeutics in King's College, and Examiner in Medicine at the Royal College of Physicians. Author of "Food in Health and Disease," etc. Revised edition, with Formulæ adapted to the Standard Strength of Preparations employed in America, by Oscar Olddery, Pharm. D., Dean of the School of Pharmacy of Northwestern University; member of the Committee of Revision of the Pharmacopeia of the United States. Fourteenth editon, twenty-second thousand. Two volumes. Chicago: W. T. Keener & Co. 1906.

This well known and deservedly popular book does not need an extensive review. The present edition seems to equal its predecessors in merit.

The Nature and Treatment of Cancer (some methods of hypodermic medication in the treatment of inoperable cancer). By John A. Shaw-Mackenzie, M.D., Lond. Third edition, revised and enlarged. New York: William Wood & Co. 1906.

The book expresses the author's views of the use of chian turpentine and sodium oleate in the treatment of cancer, the relation of diabetes to cancer, etc. This work cannot be commended. The cases are too few and too poorly reported to be of any value.

A Textbook on Prescription-Writing and Pharmacy, with Practice in Prescription-Writing, Laboratory Exercise in Pharmacy and a Reference List of the Official Drugs especially designed for medical students. By Bernard Fantus, M.D., Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons of Chicago, the College of Medicine of the University of Illinois, Professor of Materia Medica and Therapeutics, Jenner Medical College, Chicago. Second edition, thoroughly revised and adapted to the eighth (1905) edition of the United States Pharmacopeia. Chicago: Chicago Medical Book Co. 1906.

This book is the second edition of the "Laboratory Manual on Pharmacognosy, Pharmacy and Prescription-Writing," published in 1902, now changed to include only pharmacy and prescription writing. It is clearly and simply written and contains useful information for the student and practitioner.

THE BOSTON

Medical and Surgical Journal.

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RELATION OF PHILOSOPHY AND PSYCHOLOGY TO MEDICINE.

The strong and eloquent addresses[1] at the academic session of the dedicatory exercises of the new buildings of the Harvard Medical School, held last week in Sanders Theater, Cambridge, made an impression which came near to being completely satisfying. And yet there must have been a certain number of the attentive listeners who felt that the inspiring sketch of the powers and duties of the ideal physician of the future, as well as of the chances that lie before the college student to fit himself more adequately for his coming task, lacked one important feature. Almost everything that was said had reference to the healthy *body*, almost nothing to the healthy *mind*.

It is not in any spirit of criticism of the broad and liberal speakers that attention is called to this fact, but only for the sake of indicating the existence of a tradition that is far too strongly fixed, and to our duty in the way of counteracting it.

The physician is constantly being told that he is a "naturalist," and when "the sciences contributive to medicine" are in question it is the so-called "natural sciences," as botany and chemistry, biology and physics, that are held in mind. Doubtless, it would be agreed that it is for the sake of the *mens sana* that we need the *corpus sanum*, but it is forgotten, or not realized, that the path to the healthy mind lies not alone through the healthy body and the healthy brain, but through other paths as well, and more direct ones; and it is usually forgotten, too, when the means are enumerated by which the health of the body is to be secured, what immense resources lie within the reach of fine courage and intense desire, and strong faith and cool judgment and firm will. The researches of the physiologist Pawlow, confirming and refining the common observation that favorable emotions are an effective means of securing good digestion, significantly hint at a wide range of facts, of infinitely great importance.

Equally true with the statement that a healthy mind helps to a healthy body, and is itself the best eventual outcome of the physician's labor, is the fact that there are sciences directly contributive to the success of this department of the art of healing, which the college student should be urged to study, and which the medical profession should aim to place in practical form before the public.

These sciences are philosophy and psychology, both richly represented in the University at Cambridge. If philosophy has the dignity of age, it is showing likewise, in these days, the splendid strength of youth, while psychology, the highest branch of physiology, is founded, like the "natural sciences," upon accurate observation and induction.

President Eliot justly said, at the Medical Alumni dinner, that the guarding of the public morals was one of the physician's duties and that he ought to be guided by a religious spirit in his various tasks; but to discover the rational basis of morals and the rational basis of religion is the high function of philosophy. It is often said that the mind, because we cannot directly know it otherwise than as in the guise of human acts, has no existence or reality except as a function of the brain. But philosophy and logic teach that the mind is the very type and essence of reality, thus doubly deserving of the physician's care.

Such facts and arguments as these are of a sort that should appeal with special force to the minds of able and intelligent laymen, especially students of education, and by bringing them before the attention of physicians these persons can render the profession a great service. Let us hope that by the time the Medical School celebrates another public anniversary it will be impossible for any of her well-wishers to fail to note the importance of the debt which medicine owes to the great sciences which supply the rational basis for the best ideals of human progress and for the adequate training of the emotions and the will in the service of health.

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[1] See pages 365 and 367

APHASIA.

MARIE[1] has recently published a preliminary article upon aphasia, of a most startling and revolutionary character. He claims that the doctrines hitherto advanced have been chiefly theoretical and schematic. Wernicke based his auditory center primarily upon the anatomical work of Meynert, but since lesions in the right temporal lobe give rise ordinarily to no auditory symptoms, Meynert's theory fails and we have no clinical proof that the first temporal convolution is an auditory center. We must discard all the schemes of the mechanism of language which have been proposed. In every case of aphasia there is more or less trouble with the comprehension of spoken language which may be total or partial. This disturbance of comprehension may not be manifested in simple commands, but it will be in complicated orders. Thus when a patient is given three bits of paper and is told to give the physician the largest, to throw away the medium-sized piece and to put the smallest in his pocket, he often fails to do it even when the acts have been repeated before him. The dominant fact is a marked diminution of intellectual capacity. The intelligence is not intact. There is a loss of memory of those ideas and actions which have been learned by didactic procedures. The patient cannot execute a musical composition, cannot add or subtract, cannot tell the time; and a good cook, for example, was unable to concoct the simplest dish, bungling it and reversing the processes. At first sight the patient shows no mental change, and he is able to lead his ordinary life, but his ideation is limited; he is not initiative. He shows exaggerated affective reaction. He may still be polite and his social manners may be retained. His mimetic action may be somewhat exaggerated so that he is thought to be intelligent, but this is only upon the emotional side. The conventional gestures, such as are manifested when told to show how to go to bed, are defective, and also other mimetic actions are of a defective character, such as the imitation of an event or imitation of acts of his trade.

The theory of a special auditory speech center in the first left temporal convolution, therefore, cannot be accepted, and even apraxia, which has recently been differentiated as the function of a special center, is due rather to the loss of intelligence than to a specific defect. The special rôle of Broca's convolution is also questionable, for there have been reported cases of destruction of this convolution without aphasia, and cases of aphasia with absolute integrity of the convolution, and Marie claims that it plays no special rôle in the function of language. In about one half of Marie's cases there was a lesion involving Broca's convolution, which is always involved with the other convolutions about the fissure of Sylvius, whenever the artery of the fissure of Sylvius is blocked. Notwithstanding this criticism, Marie admits that the two forms of aphasia popularly associated with the names of Broca and Wernicke are clinical realities. In Wernicke's aphasia the patient can talk and often talks too much, but he talks badly and there may be paraphasia or jargonaphasia. He is unable to understand well on account of intellectual failure, and is unable to read or write. In Broca's aphasia the patient is unable to read, write or understand and cannot talk at all. In anarthria, speech is absent or incomprehensible, but the patient can understand, read, write and know the number of syllables in the word. In true aphasia there is insufficient comprehension of speech and intellectual failure, with inability to read or write. In anarthria there is a lesion in the lenticular nucleus or the anterior portion of the internal capsule. This may occur in right-sided lesions and, if on one side, it may improve by the education of the healthy hemisphere, but aphasia does not improve. The speech, the management of the current of air, the induction by the vocal cords, the articulation by the tongue, lips and palate, may all be affected.

Broca's aphasia, then, is Wernicke's aphasia plus anarthria. There is only one aphasia, Wernicke's, with its seat in the supramarginal and angular gyri and in the first and second temporal convolutions, on the left side, namely, in Flechsig's posterior association center. This aphasia is due to intellectual defect and not to a destruction of special centers of language. When, in addition to that, the special motor centers for articulation are destroyed, giving rise to anarthria, we get the picture of Broca's aphasia. The intensity of the aphasia is proportional to the intensity of the lesion of this association zone. Marie's high reputation and the fact that he bases this preliminary communication upon a study of one hundred cases with fifty autopsies make his conclusions of extreme interest, and we await with impatience the promised elaborate study of the cases which he claims will completely establish his revolutionary views.

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[1] La Semaine Médicale, May 23, 1906.

THE REHABILITATION OF THE SPHYGMOGRAPH.

It is frequently the fate of mechanical devices introduced into clinical work to fall into disuse after being widely heralded. This is often the fault of the instrument, sometimes that of the user. At any rate a healthy skepticism exists in regard to new mechanical apparatus for the clinician and he demands the proof of usefulness before adoption, which requires often long experience in a large hospital or research laboratory.

The sphygmograph was introduced to give graphic tracings of the pulse wave, and was for a time very largely used. Gradually, however, it fell into disrepute because the form of the curve obtained depended so much on the method of adjustment of the instrument that not much information about the case under investigation was obtained. However, in somewhat modified form, the sphygmograph has been again restored to usefulness in the study of cardiac arythmia and heart block. This is not because of the correction of the faults previously found in the instrument, but rather the result of its use for a new purpose. So long as the form of the pulse wave is the end sought the sphygmograph is of but limited value. Used to obtain the time relations of pulsations it is very valuable. As Mackenzie tersely put it in Toronto, no one would condemn a hand saw because it is not a good instrument with which to shave, and so with the sphygmograph.

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MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Oct. 3, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 42, scarlatina 15, typhoid fever 52, measles 1, tuberculosis 41, smallpox 0.

The death-rate of the reported deaths for the week ending Oct. 3, 1906, was 18.70.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Sept. 29, 1906, is 187, against 187 the corresponding week last year, making the death-rate for the week 16.10. Of this number 99 were males and 98 were females; 186 were white and 1 colored; 121 were born in the United States, 59 in foreign countries and 7 unknown; 36 were of American parentage, 126 of foreign parentage and 25 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 36 cases and 0 deaths; scarlatina, 12 cases and 0 deaths; typhoid fever, 63 cases and 4 deaths; measles, 1 case and 0 deaths; tuberculosis, 33 cases and 24 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 16, whooping cough 1, heart disease 16, bronchitis 5 and marasmus 7. There were 9 deaths from violent causes. The number of children who died under one year was 46; the number under five years 60. The number of persons who died over sixty years of age was 37. The deaths in public institutions were 58.

There were 2 cases of cerebrospinal meningitis reported during the week.

Dr. C. Clark Towle, Somerville City Physician. — Dr. C. Clark Towle has been appointed city physician of Somerville, Mass., to fill the vacancy caused by the death of the late Dr. Dearborn. The statement recently made that Dr. Frank L. Morse had been appointed city physician was correct, but his name has been withdrawn because he also holds the position of bacteriologist to the Board of Health, and likewise has duties in connection with the contagious hospital. Dr. Towle has been assistant city physician.

NEW YORK.

Bequests. — Among the charitable bequests in the will of the late Henry L. Barbey, of New York, are $25,000 to St. Luke's Hospital, $20,000 to the New York Hospital, and $10,000 each to St. Luke's Home and the Home for Incurables at Fordham, in the Bronx.

Hospital Death-Rates. — The various hospitals of the city have often been accused of shipping off their dying patients to Bellevue Hospital, for the alleged purpose of keeping their death-rates as low as possible. Now the authorities of the Metropolitan Hospital on Blackwell's Island have made a complaint, through the Commissioner of Public Charities, that too many dying patients have been transferred to that hospital from Bellevue. It appears that it was customary for the ambulance surgeons and other members of the house staff of the latter to take the responsibility of making such transfers. Consequently, Dr. Armstrong, the general medical superintendent of Bellevue, has issued an order to the effect that hereafter transfers to the Metropolitan Hospital shall be made only by order of the visiting physicians and surgeons.

Obituaries.

WILLIAM K. OTIS, M.D.

Dr. William K. Otis, of New York, died from pneumonia on Sept. 22. He was born in New York, and was the only son and eldest child of the late Dr. Fessenden N. Otis, the eminent syphilographer, who for many years occupied the chair of genito-urinary diseases in the New York College of Physicians and Surgeons. He was graduated from the academic department of Columbia University in 1882, and from the College of Physicians and Surgeons in 1885; after which he served as interne at St. Luke's Hospital, New York. After going into practice he devoted himself to his father's specialty, and soon won a deservedly high reputation in this department. At the time of his death he was Professsor of Genito-Urinary Diseases in the New York School of Clinical Medicine, attending surgeon to St. Mark's Hospital, and consulting surgeon to the City Hospital on Blackwell's Island. The untimely death of Dr. Otis, in his prime, is a distinct loss to the medical profession, and will be profoundly felt by the very large circle of friends to whom from his early youth he had endeared himself by his happy disposition and many lovable traits.

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F. J. McQUEENY, M.D.

Dr. Francis J. McQueeny died suddenly, Oct. 1, after an illness of about two weeks. His illness had not been considered serious and his sudden death was, therefore, quite unexpected. Dr. McQueeny was born in Boston, Feb. 29, 1859, and received his early education in the public schools. He was graduated from the Harvard Medical School in the class of 1890, and after two years of further study in Germany returned to Boston and began the practice of his profession. He was a member of the Massachusetts Medical Society, the Thorndike Medical Association, the Harvard Medical Alumni Association and of several Boston clubs. For about twelve years he had served as police surgeon, and he was also high medical examiner of the Massachusetts Catholic Order of Foresters. Dr. McQueeny's career had been a most honorable one, and both in and out of his profession he had gained many warm friends. His death, while still comparatively a young man, will be learned with regret by a large number in this community.

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Current Literature.

The American Journal of the Medical Sciences. September, 1906.

1. Williams, J. V.: *Toxemic Vomiting of Pregnancy*
2. Helmholz, H. F., and Cushing, H.: *Elephantiasis of the Scalp.*
3. Hirschfelder, A. D.: *Graphic Methods in the Study of Cardiac Diseases.*
4. Pable, R. D.: *Insufficiency of the Tricuspid Valve in the Course of Pernicious Anemia*
5. Hastings, T. W.: *Elephantiases Non Parasitica.*
6. Carrel, Alexis, and Guthrie, C. C.: *Results of the Biterminal Transplantation of Veins.*
7. Janeway, T. C.: *Essential Pentosuria in Two Brothers.*
8. Clarke, T. W.: *The Value of Massive Doses of the Salicylates in the Diagnosis and Treatment of Acute Articular Rheumatism.*
9. Ashburn, P. M., and Craig, C. F.: *A New Blood Filaria in Man: Filaria Philippinensis.*
10. Simon, C. E.: *Splenomedullary Pseudoleukemia with Secondary Myelophthisic Anemia.*
11. Kelly, A. I. J.: *Infections of the Biliary Tract with Special Reference to Latent (or Marked) and Typhoid Infections.*

1. Williams divides the pernicious vomiting of pregnancy into three classes: the reflex, the neurotic and the toxemic. The first is where the vomiting is due to an abnormality of the generative tract, such as a retroflexion. The neurotic variety is where the vomiting is dependent upon a neurosis, allied to hysteria and relieved by methods of suggestion or a rest cure. Toxemic vomiting, on the other hand, is a very serious disease, usually fatal. There are signs of a profound intoxication, sometimes coma. There is a profound disturbance of metabolism of a nature still obscure. The urine to casual examination may seem normal, with normal urea secretion by the Doremus method; yet on more careful examination there is a *decrease in urea*, and a marked increase in the nitrogen putout *as ammonia*, even to 47% of the total nitrogen eliminated. The proportion of amido acids is increased. At autopsy, lesions are found in liver and kidneys; in the former, changes resembling those of acute yellow atrophy, in the latter degenerations approaching necrosis. For prognosis and treatment this condition must be distinguished from the reflex and from the neurotic cases. For this purpose in every case of serious vomiting of pregnancy the total nitrogen in the urine, and the percentage in this of ammonia, should be determined. If the latter exceeds 10% a diagnosis of toxemic vomiting should be made and the pregnancy immediately terminated. Cases are reported and the nature of the disease is further discussed. The author regards it as allied to acute yellow atrophy and not to eclampsia.

3. Hirschfelder describes the principles and the technique of application of graphic methods in the study of cardiac diseases. These methods form an important advance in the means at our command for demonstrating the manner of the heart's action in normal and in abnormal states. Tracings are taken recording curves of pressure over the jugular vein, over the carotid, over the brachial artery or over the apex. The author's work has been done mostly with carotid and jugular tracings. The normal jugular curve shows mainly a wave of high pressure, preceding the first sound, due to *auricular* systole. (There is a slight rise at the beginning of the ventricular systole and another just preceding the opening of the tricuspid valve.) The carotid tracing shows mainly a sharp rise following the opening of the aortic valve by *ventricular* systole; also a dicrotic notch marking the closure of the aortic valve. Variations in the forms of these curves and in their mutual relations show abnormalities. For example, tricuspid insufficiency produces a great rise in the jugular curve during *ventricular* systole. Extra systoles give characteristic curves according to their origin, whether in auricle or in ventricle. In partial heart block, when two or more auricular systoles occur to each ventricular systole, each contraction of each chamber is plainly indicated. Other illustrations of this method are given, with a full bibliography.

6. Carrel and Guthrie have established by animal experiment that a segment of vein inserted between the cut ends of an artery quickly becomes thickened in its muscular and fibrous coats, showing a tendency to assume the character of arteries. From a physiological standpoint such segments of vein perform the arterial functions. Twelve months after operation these arteriovenousanastomoses have remained in excellent condition.

7. Janeway's cases of essential pentosuria are the first reported in English literature. The condition is analogous to diabetes, the urine containing pentose, a sugar which reduces Fehling's solution but does not rotate polarized light or undergo fermentation. Its main importance lies in the danger of mistaking it for diabetes. Cases should

not be put on restricted diet. No bad effects from the condition have yet been noted.

11. Kelly reports the results of bacteriological study of the contents of the gall bladder at the time of operation in 70 cases. In 23 of these the colon bacillus was found; in 7, the bacillus typhosus; in 6, other bacteria; in 34, no bacteria. The author believes that the frequency of infection from the duodenum through the common bile duct has been overestimated and the frequency of infections through the portal circulation underestimated. Of 8 cases in which the typhoid bacillus was demonstrated, 4 could give no past history of typhoid fever.

THE LANCET, SEPT. 1, 1906 THE STUDENTS' NUMBER. SESSION 1906-1907.

1. EDITORIAL ADDRESS: *An Address to Students*
2. EDITORIAL ADDRESS: *The Development of Pathology.*
3. EDITORIAL ADDRESS: *The Student's Library.*
4. GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.
5. REGULATIONS OF MEDICAL EXAMINING BOARDS.
6. HOSPITALS AND MEDICAL SCHOOLS.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. SEPT. 22, 1906.

1. BRIDGE, N.: *Gallstones and Gall Bladder Diseases from the Standpoint of the Physician*
2. CORDIN, A. H.: *Nephrolithiasis.*
3. MAYO, W. J.: *The Surgical Treatment of Gastric and Duodenal Ulcer and Its Results.*
4. LATHAM, V. A.: *Some Pathological Features of the Pulp.*
5. SPILLER, W. G., and FRAZIER, C. H.: *Cerebral Decompression.* (Concluded.)
6. STARR, M. A.: *The Present Status of Brain Surgery.*

1. Bridge calls attention to the responsibility which rests upon the physician to make early correct diagnoses and to advise proper surgical treatment in gallstone disease. As symptoms he mentions, first, pain (not necessarily very intense); next, tenderness over the gall bladder; then chills and fever, often irregular; perhaps jaundice. Palpable gall bladder, enlarged liver or local peritonitis may occur. Long-continued jaundice with large gall bladder means tumor pressing on the common duct; such jaundice without distended gall bladder means stone in 80% of cases. As to surgical treatment, it is to be advised in all cases, —where infection is proved; where attacks have led to the opium habit; wherever there is distention of the gall bladder, especially if pus is suspected; in all cases where symptoms are persistent or frequently recurrent. Whether all cases where gallstones are known to be present should be operated upon is still disputed; the dangers of non-interference may be great, and the risk in "interval" operations is slight. Medical treatment when operation is not needed or is refused is as follows: In acute cases, absolute rest, starvation, nutrient enemas. With the onset of pain evacuate the stomach by stomach tube or zinc sulphate, and the bowel by enemas. Use hot poultices or ice bag. In chronic cases medical treatment, such as is carried on at Carlsbad, for example, can do nothing except to diminish the susceptibility to infection.

2. Stones in the pelvis of the kidney or ureters are to be looked upon as dangerous foreign bodies. It is only a question of time in every case until an infection is developed, and a nephritis results. Symptoms may be obscure a lumbago, pain in the glans penis or clitoris, increased desire to urinate, etc. Tenderness is seldom found except where there is enlargement of the kidney from inflammatory involvement. With few exceptions blood can be detected in the urine. X-ray findings may be misleading, especially if negative. The author's technique in exploration for stone and in nephrotomy is described.

3. Ulcer of the stomach or duodenum properly belongs to internal medicine; surgery has to do only with its complications, such as perforation, hemorrhage and obstruction. Of perforations Mayo has had 7 gastric with 2 deaths and 9 duodenal with 3 deaths. The perforation is sutured, pelvic drainage established and the patient subsequently maintained in semi-sitting position for several days. Recurring acute hemorrhages are best treated by locating the bleeding point and suturing from the mucous surface; gastro-jejunostomy is not reliable in acute hemorrhage. Chronic hemorrhages may be treated by gastro-jejunostomy or by excision of the ulcer. Of chronic ulcer 600 operated cases are analyzed as to occurrence, position and type. In 383, gastro-jejunostomy was performed. In 135 "no loop" operations there was but one death. Gastro-duodenostomy (Finney's operation) was done in 71 cases with but 4 deaths and in general good end results. Fourteen ulcers were excised. The pylorus was resected 9 times; all these patients have remained well. In 12 cases of hour-glass stomach, resections were done without a death. Gastro-jejunostomy is the operation most generally useful. Finney's operation is the operation of choice when the obstruction is due to spasm or other non-mechanical cause. Gastric ulcers not interfering with drainage should be excised if possible. Calloused ulcers should be treated by resection on account of danger of carcinoma. With few exceptions duodenal ulcers are best treated by gastro-jejunostomy. More than 90% of patients suffering from gastric and duodenal ulcer who have been subjected to operation have been cured.

6. Starr's statistics and observations give the following data. Epilepsy: not more than 2% of cases are suitable for operation; in about 20% of those operated on permanent cure has resulted. Brain abscess: only 60% in 500 cases have recovered; yet with earlier diagnosis a greater percentage should be saved in the future. Brain tumor: about 10% of tumors are open to surgical treatment; in 828 operations 116 cases recovered, 205 were improved; 186 not improved, 265 died, 56 result not stated (Knapp); palliative operations are justifiable. Cerebral hemorrhage: in extradural hemorrhage cures by trephining are frequent; in apoplexy, with blood pressure rising to 250 mm. and pulse falling to 50, an operation to relieve pressure may save life (Cushing); in intracranial hemorrhages of new-born children similar results may be obtained, also in surface hemorrhage from veins developing slowly after injury. Imbecility: no operation has been known to give any mental improvement.

BRITISH MEDICAL JOURNAL. EDUCATIONAL NUMBER. SEPT. 1, 1906.

This number of the *Journal* is given over to three editorial articles on "The Profession of Medicine," "The Portals of Medicine," and "The Prospects in the Profession" The remainder of the number consists of detailed accounts of the entrance requirements, fees, courses of study, etc., of the various British, Scotch and Irish medical institutions and hospitals.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT, NO. 37. 11 SEPT.

1. ASCHAFFENBURG, G.: *The Relation of the Sexual Life to Nervous and Mental Diseases.*
2. ROLLY: *An Epidemic of Poisoning due to Canned Beans.*
3. HOCHEISELN: *Skopolamin-Morphine Anesthesia in Labor.* (Continued article.)
4. GRUND, G.: *Reflex Anuria during Cystoscopy.*
5. SCHILLING, T.: *Favorable Effect of the Roentgen Rays on Chronic Bronchitis and Bronchial Asthma.*
6. MERKEL, H.: *A Case of Treitz's Hernia with Rupture of the Sac.*
7. GERMER: *A Case of Traumatic Hernia of the Lung without Penetrating Wound of the Chest.*
8. VOERNER, H.: *A Remarkable Case of Tuberculous Exanthem.*
9. GOLDBERG, B.: *Chronic Cysto-Paretic Prostatitis.*
10. FRIEDEMANN, G.: *Ligation of the Pelvic Veins in the Pyemic Form of Puerperal Fever.*
11. DREYFUSS, J.: *The Extent of Breast and Bottle Feeding in Kaiserslautern, with Reference to the Physical Condition of the Infants.*
12. FLEURENT: *A Case of Simultaneous Intra- and Extra-Uterine Pregnancy.*
13. THALWITZER, F.: *Epileptics as Chauffeurs.*

1. According to Aschaffenburg, masturbation is never the cause of disease in normal persons. Where excessive and long continued, it is usually a symptom of either mental disease or degeneracy; in those constitutionally neurotic, it produces symptoms only through the effect

on the mind. In common with the best modern authorities, Aschaffenburg holds that chastity of itself produces no harmful effects, but only in those cases where the person fears that harm may come from continence. Criticism of Freud's view that hysteria in every case is the result of a sexual "trauma."

2. Rolly describes an epidemic of poisoning (250 persons) from canned green beans. The symptoms were those of enteritis, and came on within a few hours; recovery took place within a short while in every case. The colon bacillus and the paratyphoid bacillus, type B., were isolated from the beans. Animal experimentation showed that the symptoms were due to the toxic products of these bacilli. The toxins in question are not destroyed by boiling, so that even if the beans had been cooked again before being eaten, the poisoning would have occurred.

4. In this case (tuberculosis of right kidney, bladder and epididymis), complete anuria was noted for twenty-five minutes after the insertion of the cystoscope. The cause was propably irritation of the neck of the bladder, either from pain or distention.

5. Schilling reports marked benefit in eight cases of asthma and bronchitis, from the use of Roentgen rays. Immediately after a single sitting of fifteen minutes, the sputum and dyspnea began to decrease; in one case they ceased altogether

6. This case of hernia into the left jejuno-duodenal fossa, with rupture of the sac, was an accidental finding at autopsy. The intestines had escaped through a large hole in the sac, back into their usual position. The sac when reconstructed, held the entire small gut. That it was really a Treitz hernia, Merkel proved by the absence of an afferent loop in the sac's contents, and the presence of the characteristic vessels (*inf.* mesenteric vein, left colic artery) in the right side of the ring.

8. Voerner reports a case of tuberculous rash in a child four months old, the subject of congenital dilatation of the colon and pulmonary tuberculosis. The efflorescences occurred in groups on the back, breast and abdomen; they consisted of pin-head to pea-sized nodules of a peculiar dark brown red color and very soft. Microscopical examination showed spindle and plasma cells with a few giant cells; tubercle bacilli could not be found. Infection through the blood is inferred.

9. Goldberg proposes the name chronic "cystoparetic" prostatitis for those cases of prostatitis combined with dilatation of the bladder with retention.

10. Report of a severe case of thrombo-phlebitic puerperal fever in which Friedemann ligated the ovarian and hypogastric veins, which were thrombosed. In spite of a metastasis in the lungs, recovery followed.

Die Therapie der Gegenwart.
September, 1906. Heft 9.

1. Ewald, C. A.: *Nervous Hepatic Colic.*
2. Silbergleit, H.: *The Action of Hydrochloric Acid on Experimental Deposits of Uric Acid.*
3. Zuelzer, G.: *The Treatment of Bronchial Asthma.*
4. Opitz, E.: *Appendicitis Complicated by Pregnancy.*
5. Gutzmann, H.: *Weakness of the Voice.*

1. This is one of the rare cases of neuralgia of the liver. A neurotic woman of thirty had pain in the region of the gall bladder for a year, and violent colic once or twice a day for three months, requiring morphine. When seen by Ewald she was vomiting all food and in very bad condition. The physical examination, except for great tenderness over the gall bladder, was negative; the liver was not enlarged, and there was no jaundice. Stigmata of hysteria were lacking. An operation showed the bile ducts and the gall bladder to be normal. The patient recovered soon after the operation, both from the colic and the accompanying morphinism.

2. In a series of pigeons Silbergleit produced uric acid deposits almost invariably, on heart, pericardium and liver, by means of injecting 0.03 gm. chromate of potash into the pectoral muscle. A second series of pigeons received the same injections, and also ¾ of a tablet of acidol (1 tablet = 10 drops officinal hydrochloric acid) daily, by mouth. The pigeons died, or were killed on the third day. None of the pigeons treated with acidol showed uric acid deposits. Silbergleit next repeated Van Loghem's experiments, injecting uric acid into rabbits, both under the skin and into the peritoneum. The animals were killed three to six days later, and the following appearances were found in every case; great diminution in the size of the deposit, transformation of the uric acid into sodium urate, with a zone of inflammation around, like a tophus. A second series of rabbits received besides these injections 100 cc. of a ½% HCl solution daily, by mouth; all these animals showed larger deposits, with no formation of urates, and no signs of inflammation. Silbergleit thus confirms the results obtained by Van Loghem. He is unable to explain how hydrochloric acid produces this effect. [These experiments appear to open up new possibilities in the treatment of gout.]

3. Zuelzer warmly recommends the injection of atropine (1 mgm.), to cut short the asthmatic paroxysm. By this means the emphysema, and therefore the dyspnea, is promptly relieved. The reason for this, according to Zuelzer, is as follows: The emphysema is due to irritation of the vagus, and atropine, as is well known, paralyzes the terminal filaments of the vagus. In support of his theory, he adduces the fact that emphysema may be experimentally produced by electrical stimulation of the vagus; if, however, the animal has previously received atropine, no emphysema takes place. He also reports a case of "vagus neurosis," resembling an attack of asthma, except that there was complete absence of râles. There was extreme expiratory dyspnea, emphysema, with tenderness of the right vagus, and slowing of the heart's action. An injection of atropine brought immediate relief.

4. Opitz reports three cases of appendicitis in pregnancy. From a study of the literature he concludes that pregnancy does not favor the occurrence of appendicitis, but rather the contrary. When it does take place, it runs a more serious course, with especial danger to the life of the fetus. The indications for operation are in general the same as in the non-pregnant. If labor pains have begun, or peritonitis has spread to the surface of the uterus, or the fetus is already dead, vaginal Cesarean section should be performed before laparotomy.

Zeitschrift fur Klinische Medizin.
Bd. 60. Heft 1 and 2.

1. Goldscheider: *Neurotic Bone Atrophy.*
2. Joachim, G.: *The X-Ray Treatment of Leukemia and Pseudoleukemia.*
3. Levy, F.: *The Estimation of the Functioning Capacity of the Heart.*
4. Rothmann, M.: *The Symptom-Complex of Lichtheim's Motor Aphasia (transcortical motor aphasia).*
5. Wirsing: *Intestinal Myiasis.*
6. Lubenau: *Heart Disease in the Berlin Laboring Classes.*
7. Keutzler, J.: *Spinal Cord Changes Following the Experimental Injection of Blood.*
8. Hess, O.: *The Diagnosis and Pathogenesis of Adherent Pericardium in Childhood. A Reply to a Previous Paper* of Flesch and Schossberger (same *Journal*, Bd. 59).

1. Goldscheider, in connecion with the study of a case of trophic disturbance of the hand, sixteen years after traumatic injury, discusses in considerable detail the many theories advanced to explain trophic changes and their association with the central nervous system. He believes that peripheral neurotic bone atrophy, such as occurs chiefly after traumatic nerve affections and in association with arthritis, depends on a combination of a pathologically increased nervous stimulation, involving the blood vessels through the vasomotor nerves, with a centripetal disturbance of conduction, and that it is not simply the result of inactivity. This does not involve the assumption of the existence of trophic nerves and trophic centers, but admits the close association of nerve impulses with anabolic and katabolic cellular activity, a theory for which there is now a considerable amount of experimental evidence. The paper is a discussion of theories and the author advances no experimental proof for his conclusions.

2. Joachim presents the results of the x-ray treatment of 10 cases of myelogenous leukemia, 6 of lymphatic leukemia, 2 of atypical leukemia, 3 of splenic pseudoleukemia and 6 of lymphatic pseudoleukemia. He considers the effect of the treatment on (1) the blood, (2) the tumors, (3) the general condition of the patient.

(1) In pseudoleukemic patients the treatment produced a slight decrease in the number of leucocytes, usually at the cost of the lymphocytes and a slight increase or no change in the red cells. In both myelogenous and lymphatic leukemia usually there was a reduction in the number of leucocytes, however, in some cases only after a long period of latency. Most cases relapse, and in the relapses reduction of the number of leucocytes under x-ray treatment was slower than in the first treatment. Myelocytes were the cells relatively most reduced while neutrophilic polynuclears were usually relatively increased In lymphatic leukemia, while there was a reduction in the absolute number of leucocytes, there was relatively less reduction in the per cent of lymphocytes in these cases than of myelocytes in myelogenous leukemia. In some of the leukemic cases the red cells were increased in number; in others decreased.

(2) X-ray treatment almost always reduced the size of the spleen in myelogenous cases, and the same was true of the lymph glands in the lymphatic cases. On the other hand, the spleen in pseudoleukemic cases was little influenced.

(3) Considerable differences were found in the effect of x-ray treatment. Some cases of myelogenous leukemia were much improved; others grew rapidly worse. The latter were cases with a considerable anemia. With lymphatic leukemia x-ray had little effect on the general condition while with pseudoleukemia there was moderate improvement though less than in the favorably influenced cases of myelogenous leukemia.

As a result of these studies Joachim believes that leukemia cases should be tried with x-ray treatment; that cure is not yet to be expected, but in many cases a prolongation of life and an amelioration of symptoms are to be anticipated. In some cases, there will be no improvement or even an injurious action. When the anemia increases or the general symptoms grow worse the x-ray treatment is to be discontinued, and arsenic with other therapy substituted.

3. In cardiac cases it is essential for prognosis to have some way of estimating the power of the heart to do work; we must know what capacity the heart has of performing its functions before we can estimate how much the heart in a given case has been injured. Katzenstein, two years ago, suggested the following method of obtaining this information: The patient is in the recumbent posture and his blood pressure and pulse rate are determined; then the femoral artery on each side is compressed just below Poupart's ligament with the middle finger of each hand until the pulse beyond is obliterated; under normal conditions after a few minutes there is a rise in blood pressure of 5 to 15 mm. of mercury while the pulse rate remains the same or falls somewhat; after removal of the compression the blood pressure gradually falls to the previous level. In hypertrophied hearts of good functioning power the rise in blood pressure after such compression is higher, while in slightly weakened hearts there is no rise, and in much weakened hearts a fall in blood pressure, in both cases with some increase in pulse rate.

Levy has applied this method to the study of a number of cases, and finds it of much value in estimating the condition of the heart and its power to do work. Some of the cases show well its value in aiding prognosis where other methods of observation gave little clew to the defective functioning capacity of the heart. The method, however, does not give trustworthy results in very nervous, excitable patients.

5. Wirsing reports three cases of intestinal myiasis (larvæ of flies in the intestinal canal). Two cases were in babies, one in a four-year-old child. Either the eggs or larvæ of flies are ingested with the food, or during sleep the eggs are deposited about the anus, whence the larvæ enter the rectum. Diagnosis is made by finding the larvæ in vomitus or stool. Symptoms vary in reported cases, from mild to severe gastro-intestinal disturbances. In most cases it is probable that the symptoms are partly due to other digestive disturbance which makes possible the development of the larvæ in the intestinal tract. In 1902 Schlesinger and Weichselbaum collected 100 cases from the literature, but it is possible that some of these were not true cases but the result of the deposit of eggs by flies in vomitus or stool carelessly left uncovered before examination. Whether the larvæ are capable of producing any destructive lesions in the intestine is doubtful. Cases with ulceration most likely represent a secondary invasion with the larvæ.

6. This paper by Lubenau gives the results obtained in the sanatorium at Beelitz near Berlin in the treatment of certain groups of cardiac cases. The institution is maintained by one of the insurance companies for laboring men, and its aim is to so ameliorate the individual's cardiac distress as to enable him to return to work of some kind and be self-supporting. It closely resembles in purpose the tuberculosis sanatoria maintained by the insurance societies of Germany.

The cases are selected so as to give treatment to those in which cure or marked improvement in the sense of ability to work is to be anticipated. They are the cardiac neuroses (35%), simple idiopathic hypertrophies (40%), primary dilatations and primary heart weakness (debilitas cordis), each 10%. The remaining are cases with slight valvular or myocardial lesions; but it is in the former that the best results are obtained. Most of the cases are etiologically dependent on the occupations, whether from strain or part of a neurosis. The author quotes numerous cases which give a good insight into the character of the work and its results. The treatment is a sanatorium treatment,—rest, fresh air, local cold applications and carbon dioxide baths. Toward the end of the cure there are regulated gymnastic exercises to accustom the heart gradually to the strain of physical exertion. The results of four years' experience show the institution to be a great boon to the laboring classes.

7. Repeated subcutaneous injections of blood corpuscles of various kinds into rabbits produce a progressive paralysis beginning in the legs and extending up until the respiratory centers are involved and death ensues. Histological examination shows degenerative changes in the nerve cells of the cord. The author regards this effect as due to the action of an endotoxin set free from the cells after injection into the body. The same results are obtained by the injection of bacterial endotoxins.

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Miscellany.

HONORARY DEGREES.

Dedication of New Buildings of Harvard Medical School.

At the Academic Session held in Sanders Theater, Sept. 26, in connection with the dedication of the new buildings of the Medical School, honorary degrees were conferred by the president in the following words:

"In accordance with time-honored University usage on occasions of rejoicing, I now create, in exercise of authority given me by the President and Fellows and the Board of Overseers,

Honorary Doctor of Arts:

"Charles Allerton Coolidge, architect, designer of admirable buildings for academic and scientific uses in California, Illinois, New York and Massachusetts; designer of the monumental new buildings of the Harvard Medical School, buildings in which are combined spaciousness, splendor of material, fine grouping, durability and careful adaptation to their special uses; through professional skill and patience an influential promoter of the purposes and wishes of the Medical Faculty;

Original Articles.

ACUTE AND CHRONIC INDIGESTION.*

BY JOHN B. DEAVER, M.D., PHILADELPHIA.

Among the many heritages which civilization brings in its wake, there is one disease so peculiar to civilized communities that its total absence may almost be considered pathognomonic of a semi-savage stage of society. This disease is dyspepsia, and more particularly *chronic* dyspepsia. While acute dyspepsia is probably occasionally seen in the native Filipino and in the Hottentot or the inhabitants of Somaliland, it is unquestionably rare, and chronic dyspepsia is practically unknown. It remained for civilization, with its overeating and underchewing tendencies, to fully develop these maladies, until at the present day they have assumed an importance in medicine and surgery second to no other affection.

It is, therefore, with no apologies for my subject that I have the honor of addressing you to-day. The only regret which can come to any speaker's mind, who has such a text for his remarks, is that the amount of time at his disposal, if not his own ability, must remain unequal to the task. Time is short and the art is long; and I must crave your indulgence if I seem to pass over in a too cursory manner some topics which may seem to deserve fuller consideration than it is possible for me to devote to them on this occasion.

There is no malady which is more easily diagnosed by the patient afflicted, than is dyspepsia. It is an unheard-of thing for an individual to have indigestion, either acute or chronic, and to remain unaware of the fact. Many a patient, as we all know, may suffer from extremely serious affections of the heart, of the kidneys, even of the liver and the lungs, without being at all aware of his precarious condition. But indigestion, produced by whatever cause, makes its presence felt, and usually it is a very unpleasant presence. And yet, what is remarkable about this self-assertive power of dyspepsia is, that its causes are so various, and at time so obscure. The variety of diseases with which any other region of the body is afflicted is small in comparison with the affections of the abdominal organs. Inflammations affect all regions and every organ of the body; but with the exception of bronchitis and inflammations of the upper respiratory passages, inflammations of the digestive apparatus probably exceed in number the inflammations of every other portion of the body. Malignant growths, when occurring in the internal organs, affect the gastro-intestinal tract by preference,— with the possible exception of cancer of the uterus, which may almost be considered an external form of malignant disease. And so it is that dyspepsia, of one form or another, assumes the most important place in our nosological tables, because of its excessive prevalence. The subjoined table shows the relative frequency of the affections of the gastro-intestinal, the respiratory, the genito-urinary, and the cardiovascular systems, in the patients applying to our dispensaries.

Among 31,157 patients there were 4,924 or 15.8% in whom the gastro-intestinal tract was affected. In 7,193 or 23% the respiratory system was diseased. In 859 or 2.7% the genito-urinary system was diseased. In 903 or 2.8% the cardiovascular system was diseased.

While among children, the proportion of gastro-intestinal cases is more than twice as great as diseases of the other systems, bearing about the same relation to the whole as is the case in adults.

Among 4,678 children there were 1,716 or 36.6% in whom the gastro-intestinal tract was affected. In 1,392 or 29.7% the respiratory system was diseased. In 119 or 2.5% the genito-urinary system was diseased. In 47 or 1% the cardio-vascular system was diseased.

Now, of course the surgeon does not desire to monopolize the whole of that category of diseases described by the term dyspepsia. Selfish as he is thought to be, and eager for more work as he has always shown himself, he is yet ready to recognize that there is a certain number of these cases — indeed a fairly large proportion of the whole — which are in reality medical, in that no form of surgical treatment has yet been devised for their cure. Most cases of acute dyspepsia are undeniably medical; most cases of chronic dyspepsia can now be relieved by surgical means. And it is the duty of the progressive medical man, be he physician or surgeon, to make himself familiar with all such affections, and to be able to correctly advise his patients as to whether medical or surgical treatment is to be preferred in their particular case.

It is apparent, then, that diagnosis is in these diseases, as in all departments of medical science, the essential prerequisite to successful treatment; for although we must frankly acknowledge that there still exist some diseases which cannot be successfully treated even when their nature is known, it is even more certain that futile in the extreme are the misdirected efforts of that practitioner who attempts to relieve a patient of the nature of whose malady he is totally ignorant.

In determining the cause of dyspepsia, two principles appear to me to be of importance: in acute affections trust to physical examination rather than the history, and in chronic diseases put more reliance on an accurately detailed clinical history than on the physical signs. I say, only, to put more confidence in the one than in the other; not to blindly trust one to the absolute exclusion of the other. Such a course could not but be productive of disaster. But, as a general rule, physical signs are reliable in acute abdominal disorders, and in chronic diseases the clinical course of the disease frequently reveals the diagnosis unaided by other means. After these two cardinal methods of diagnosticating a malady have been used intelligently and exhaustively, then, and then only, will the attendant have recourse to mechanical means, such as blood examinations, skiagraphs and other laboratory methods. Most important is it, then, that physicians strive to recognize organic conditions in the stomach, and differentiate them from non-organic or functional disorders. It must be acknowledged that it is not only a waste of time and the resources of the patient to try to cure mechanical conditions medicinally or dietetically. Indigestion, acute or chronic, included under the name dyspepsia, is a disturbance simply of the natural process of digestion. So soon as we have discovered a mechanical explanation for the condition, so soon can the cause be relieved by surgical intervention only. Persistent indigestion should call for investigation before we decide it is due to a functional disorder of the stomach. It is not to be understood that I would have you think that all serious disturbances of gastric digestion are due to anatomical changes in the stomach. Many cases of dyspepsia which I see are not due to organic disease of the stomach but to abnormal conditions of the circulation and nervous system. When the patient complains of pain following the ingestion of food, vomiting, vomiting of blood, with or without loss of appetite, is pale and weak and has lost flesh, and experiences relief by rest in bed and a restricted diet, this must mean, in almost every instance, organic disease of the stomach. Symptoms, such as fullness in the abdomen after eating, flatulence, heartburn, poor appetite and constipation, are those chiefly mentioned by patients and considered by physicians as found in dyspepsia. If such a patient is carefully examined and no organic disease can be detected, then we have to describe the case as one of functional disorder of the stomach.

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* Annual Address on Surgery, before the Lehigh Valley Medical Association, Easton, Pa., July 12, 1906

It is unfortunate that investigation by test meal and the use of the stomach pump has not been of more value to us. In my experience I have no hesitancy in stating that they have no value where a differential diagnosis between organic and functional disease is to be made. Careful physical examination of the abdomen and other regions of the body, with a reliable history of the patient, is of much more moment than chemical examinations. Lavage, as now practiced by many internists and stomach specialists, is not only overdone, but misleading, not only to the patient alone, but physician as well.

While every pain in the abdomen should arouse the suspicion of appendicitis being present, the family physician is well aware that this disease is by no means the only cause of abdominal pain. But this I will say, that many and many a patient with appendicitis develops an abscess or a spreading peritonitis from no other cause than that the family physician has committed the crime of omitting a physical examination of the abdomen. Many hundreds of such cases have I seen. On the third or fourth day when the attendant finds that anodynes and the liquid diet have not relieved the pain in the abdomen, nor quieted the vomiting, then, alas, he recognizes, by a physical examination too long delayed, that the pain which he had thought so trivial as perhaps even to have prescribed for it without seeing the patient — a culpable treatment *in absentia* — he realizes, I repeat, that this seemingly trivial pain was in reality that most treacherous and malevolent disease, known by the name of appendicitis. Such a physician is more culpable even than one who, though aware of the true nature of the malady, yet attempts its cure by medical means. The result to the patient is very likely the same in either case; but carelessness is more to be blamed than ignorance.

Appendicitis is indeed a disease which of all other acute affections, ushered in by acute indigestion, can be most safely diagnosed by a physical examination. No patient with acute abdominal pain should ever be dismissed without having been submitted to palpation of the abdomen. The history is also of great importance, for by the sequence of symptoms, which in appendicitis is nearly pathognomonic — by the pain first, then the vomiting, and at last the localized tenderness — a vast horde of other abdominal affections may be readily excluded. When vomiting precedes the pain suspicions are at once aroused, and in most instances, as has been pointed out by Murphy, it will be found that the disease is not appendicitis. In children, the physician must consider simple overeating, with resultant acute gastritis — in such cases the history of overeating or of the ingestion of indigestible food, along with the negative physical examination, will make evident the true nature of the case. The swallowing of corrosive liquids or poisons must be constantly kept in mind, not only in children who may be ignorant of the nature, but in adults who may have ingested poison by mistake, in the dark, or with suicidal intent. The history is in all such cases of paramount importance, and is usually so clear as to leave no room for doubt. The various forms of intestinal obstruction must always be considered in patients with acute abdominal pain and vomiting. Frequently the acute pain of strangulation precedes the vomiting by a number of hours; and where the clinical history is negative for previous attacks of peritonitis or for abdominal operations, a careful search of the hernial rings will frequently reveal the presence of a strangulated hernia. In all conditions in which the peritoneum is involved in inflammation the salvation of the patient lies in early operation. Acute intestinal obstruction of all varieties, — strangulation by bands, strangulated hernia, internal hernia, intussusception or volvulus, — all are most successfully treated by operation, and the earlier the operation the surer is the cure. Internal strangulations can only be relieved by operative means, and early operation in strangulated hernia usually admits of radical cure of the rupture.

In the treatment of intestinal obstruction I desire to enter a plea for the old operation — Nelation's operation — of enterotomy. In these days of advanced surgery where the desire — and a proper enough desire it is — is to cure our patients by one operation alone, we are at times tempted to do too much, and in our desire to shorten our patient's confinement to bed, we sometimes abbreviate his sojourn in this world. In cases of strangulation, where excision of a portion of the gut is required, our hope naturally is to be able immediately to restore the lumen of the bowel by an intestinal anastomosis. Usually this can be done with safety; but there still exist patients who are operated on so late that the toxemia — the copremia — from intestinal obstruction is so far advanced as to make any extensive operation very hazardous. It is in such patients, as I have said, that our attempt to complete an ideal operation results in the death of the patient. Such cases as these are greatly benefited by direct drainage of the intestinal tract, and to these Nelation's operation is particularly applicable. Even when the temporary establishment of a fecal fistula is not advisable, there can, I think, be no question, that the distended bowel should be thoroughly emptied by some means before completing the operation. Either by emptying the proximal gut through the abdominal wound, before completing an intestinal anastomosis after resection of gangrenous bowel, or by evacuating the intestinal contents by means of massage of the bowel into a rectal tube passed high into the colon, I have in several instances successfully cured patients in whom toxemia from intestinal strangulation was marked.

Another prolific source of acute dyspepsia is disease of the biliary passages — infectious disease in practically all cases. Attacks of biliary colic, which are in many instances due rather to acute cholecystitis than to the passage of gallstones, are distinguished from recurrent attacks of appendicitis chiefly by the absolute freedom from indigestion during the intervals enjoyed by patients with gall-bladder disease. Patients with chronic, with recurrent, or with relapsing appendicitis are rarely entirely free from digestive disturbance. But it appears to be in some ways characteristic of gallstone patients that during the interval between their acute attacks they enjoy a most excellent digestion. They will relish lobster mayonnaise and deviled crabs with other highly seasoned food, and will digest their meals well; and then suddenly, out of the clear sky, as it were, and with no apparent relation to their meals or their indiscretions in diet, will come an attack of gallstone colic, with its intense nausea, its agonizing pain, and its marked prostrations of strength.

Perhaps, before leaving the subject of acute indigestion, it will be well to mention the affection variously known as hyperemesis lactantium, congenital stenosis of the pylorus, infantile pyloric hypertrophy, and similar titles. Whatever be its true nature, the symptomatology of this disease is fairly constant, and successful issues under operative treatment are rapidly becoming more frequent. Babies who formerly died of marasmus when a few months old, after a wretched existence characterized by persistent cumulative vomiting and by constipation, are now (thanks to the initiative of surgeons, such as Cautley and Dent in England, Nicoll in Scotland, Meinhardt Schmidt, and Trantenroth on the Continent, and Willy Meyer, Scudder, Quimby and others in this country) given a fair chance to assimilate their food and develop into healthy adults.

When we come to a consideration of the causes of chronic indigestion, it is necessary first to urge the postulate that persistent symptoms in any part of the body cannot be due to mere functional disturbances in that part. We cannot deny that through the intervention of the nervous system certain functional disorders may be produced in the portion of the body remote from the site of the actual structural change. Such conditions as the vomiting, which is frequently characteristic of brain tumor or the abdominal pain and crises felt in Pott's disease and in locomotor ataxia, are familiar instances of this truth. But surgeons do maintain and they are glad to see so able a physician as Professor Baus of Leeds [1] coming to the same conclusion, that persistent indigestion in the stomach, for example, must be due either to actual organic change in the stomach itself, or else to nervous or circulatory disturbances produced by disease in some other region of the body; that such persistent symptoms cannot be due to any functional disturbance of the organ affected, and that if disease of other regions of the body which might have a local influence on the functions of the gastro-intestinal tract can be excluded, we may with absolute and unerring certainty conclude that the local disease is organic in nature.

If, then, a patient complains to us of persistent or recurrent indigestion, which is relieved not at all or only temporarily by medical measures, we are surely justified in offering them as a solution of their structural disorders, some form of mechanical remedy; in short, some form of operation.

Chronic appendicitis does not, perhaps, to-day occupy so prominent a position in surgical discussions as it did a few years since, mainly because, I suppose, it is no longer so new. Its place has since been taken by gall bladder and gastric affections, but it nevertheless is a disease widely prevalent, and very real and imminent in the sufferings it causes. But it is a disease which to a very large extent is ignored or disbelieved in by the average physician, mainly because, I regret to say, one of the waves of injudicious surgery which periodically swell through our ranks, was responsible for the removal of many an appendix which was not really productive of discomfort; the result being that physicians who saw patients supposed to have chronic appendicitis made not one whit better but rather worse by the removal of this organ — the result being, I repeat, that physicians not unnaturally became skeptical as to the existence of such a morbid entity as chronic appendicitis.

Now it appears to me that in deciding from mere symptoms whether or not a patient has a chronic inflammation of his appendix, the surgeon should be very cautious; indeed, for my own part, unless such a patient presents a clear history of previous acute attacks, I am loath to operate; for although I have called attention to the fact that in cases of chronic indigestion the clinical history of the patient is usually more reliable than is a physical examination, yet it is absolutely essential to make a correct diagnosis to have either the clinical history or the physical examination absolutely explicit and conclusive if we would rely on one to the exclusion of the other. For a satisfactory diagnosis a certain definite sum total of factors is essential; and if we cannot obtain a sufficient quota from each of the two factors, — the history and the examination — then we must obtain our whole quota from one to the exclusion of the other. Especially true is this in the case of chronic appendicitis. If the clinical history is explicit as to previous attacks of appendicitis, the diagnosis may safely be made even though the physical examination be negative. Or if the palpating hand can unmistakably feel a thickened, tender appendix, then, even though the patient never has had a frank attack of acute appendicitis, but merely presents a history of vague abdominal discomfort, possibly more or less localized at times to the region of the appendix, then, under these circumstances of positive physical signs, the clinical history may be disregarded, and the patient assured that operation will relieve him of his distress.

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[1] Lancet, 1906, i, 1588.

The danger, and it is not as remote as was formerly thought, of chronic disease of the appendix eventually becoming malignant or tuberculous in character, should not be lost sight of. I have recently[2] drawn attention to the fact that routine examination of appendices removed at operation reveals primary malignancy in as many as 2% (?) of the cases; and Professor Broca[3] has spoken of the danger of incipient tuberculous disease of the cecum being overlooked in children with chronic appendicitis.

So, likewise, with gall-bladder disease. Persistence or recurrence of symptoms indicates the existence of structural changes; and when once biliary calculi have formed, their attempted removal by medical means is always futile. As Dr. Kelly, the pathologist of the German Hospital, Philadelphia, has pointed out in his recent Mütter Lecture (delivered before the College of Physicians, Philadelphia, 1906), "We now know the thousands of gallstones said to have been passed by the bowel after the administration of olive oil and similar preparations are merely masses resembling gallstones in outward appearance, and due to the basely deceptive powers of the olive oil acquired in its passage through the intestinal tract." For not only are the stones commonly multiple, but many of them are so large that their passage through the ducts is a physical impossibility; and although in long standing cases of cholelithiasis large calculi are occasionally discharged into the bowel by way of cholecystoenteric fistulæ, any physician who should anticipate with pleasure such a solution of the difficulty would be more fit for the days of medieval alchemy than for modern medicine or surgery. Moreover, even were all the calculi to be passed through the intestine by medical means, the infection of the gall bladder would in most cases not only persist, but soon cause the formation of other calculi. For until physicians can combat as successfully as does surgery the infection which is the underlying condition in all cases of cholelithiasis, the less they have to do with acute complications of gallstone disease the better. As Dr. Kelly points out in his Mütter Lecture, "The favorable results of medicinal treatment in the vast majority of instances by no means indicate the cure of the disease, but merely the restoration of latency" — and although this is "by no means an undesirable achievement," it is far from the *summum bonum* which is attained by operative means.

It may be stated, in passing, that in my own experience, as I believe in that of most surgeons, lesions of the pancreas are almost without exception due to pre-existent disease of the bile passages. Carcinoma of the pancreas may be an exception to this rule, but it is frequently so far advanced in its course before recognized that it is often impossible to determine where it had its primary origin, — whether in the bile duct or the pancreas itself; and its detection is in the end quite as often due to implication of the biliary apparatus as to manifest disturbances of the functions of the pancreas itself.

Chronic gastric dyspepsia has of late years afforded surgery a field for most signal triumph. I have on previous occasions quoted, and I take this opportunity of again quoting, Professor Kocher's statement in regard to the cure of gastric dyspepsia by surgical means, both because of their intrinsic value and because his name gives them added authority. Says Kocher,[4] "The majority of practitioners do not sufficiently realize what brilliant results are to be obtained by operative means in chronic affections of the stomach, commonly known as gastric catarrh. Not only can the numerous dangers of ulcerating affections of the stomach, such as hemorrhage, perforation, transition into cancer, be prevented, but the disease and its results may be so rapidly and certainly cured that the medical treatment of obstinate cases must be put in the background. . . The pain in the stomach disappears immediately after the operation. This is the invariable rule. . . . The patient does not require to pay any further attention to the nature of his food. The vomiting disappears. . . . The bowels become regular. . . . Repeated investigation of the gastric contents shows that there is a progressive improvement in the process of digestion; hyperacidity diminishes; if too little acid is present it becomes increased, a statement which is in agreement with Steudel, Carle and Fantino, Kautsch, Hartmann, Sipault and Mintz."

Even if we do not consider the relief of the patient's distressing symptoms — pain, anorexia, flatulence, vomiting, and so forth — as sufficient justification for operation, which it is, there yet remains the actual saving of life which operation procures by prevention of the later complications to which reference has been made. When we consider that under medical treatment 5% of patients with gastric ulcer die from hemorrhage, and 15% from perforations, the actual life saving value of operative treatment is evident from the fact that in skilled hands over 95% of patients recover from the operation, and that practically every one who recovers is permanently cured and relieved of all anxiety as to the occurrence of hemorrhage or perforation. And perforation and hemorrhage are not the only dangers to be feared in non-operated cases. It is becoming more and more widely recognized that in preexisting ulcer, gastric cancer has its most frequent origin. Mumford and Stone [5] found this course to have been pursued by the ulcer in 41 out of 50 cases of gastric carcinoma recently studied by them; and Jedlicka [6] quotes Ssapesko as stating that, among 100 cases of gastric carcinoma, he found only 10 in which the cancer was not engrafted on a preceding ulcer. Jedlicka himself found that, of the patients whose stomachs he resected for supposedly benign disease, more than one fourth gave microscopical evidence of carcinomatous changes in the ulcerated area. In deciding which patients are and which are not subjects of organic gastric disease, I think reliance is to be placed first on the clinical history of the patient, then on the physical examination, and lastly, upon the results of laboratory methods of research. As I have already stated, in many cases the clinical history alone makes the diagnosis certain. Pain in a fixed spot in the epigastrium, soon after eating, this pain being relieved only when the stomach is emptied by vomiting or by the completion of digestion; the periodical but by no means regular occurrence of hematemesis; the presence of such symptoms in young and anemic females, — are all factors which speak for themselves of the presence of open ulcer, which render further investigation nearly unnecessary. The existence of dilatation of the stomach due to pyloric stenosis can likewise usually be made without resort to laboratory methods when the patient presents a history of long-standing gastric dyspepsia, possibly attended years before by one or two attacks of hematemesis, but more recently characterized by persistent and cumulative vomiting, — by which I mean vomiting of food that has been accumulating in the stomach for days before, but which is only rejected when the dilated stomach has reached the limit of its capacity. In such patients an ordinary physical examination will often make evident the gastric dilatation; but if not, I prefer to dilate the stomach with air through a stomach tube, or by the administration of a Seidlitz powder in two portions, thus distending the stomach and rendering its outlines distinct to percussion. Such methods I think should only be employed in patients who are believed to have no acute ulceration present. In patients with open ulcer I consider the mere passage of a stomach tube dangerous, while distending the stomach with air might very probably cause perforation or provoke nearly fatal hemorrhage. The detection of hyperchlorhydria I think in every way inferior to a determination of the motor power of the stomach. The ingestion of salol, with its subsequent detection in the urine, I do not regard as being so reliable a method for testing the motor power of the stomach as the use of a test meal, the remains of which are removed by lavage at the end of six hours. After the lapse of this period the normal stomach should be empty; but it should not be forgotten that increased motor power is not unfrequently present in patients with open ulcer and unobstructed pylorus, since the abnormal amount of hydrochloric acid usually present in these cases accomplishes gastric digestion of proteids in a precociously short time.

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[2] Ann. Surg., Aug., 1906.
[3] Lancet, 1906, i, 1584.
[4] Op. Surg., Lond., 1903, p. 199.

In the treatment of malignant disease in the stomach, the most important thing is to *cure in the precancerous stage.* I will not go so far as to state that gastric cancer, when so far developed as to be positively diagnosticated before operation, is necessarily eventually fatal even though the patient's life may be prolonged, by resection, for a period of from one to eight years; but I will says, that with the knowledge we at present possess, no patient who presents symptoms of chronic gastric dyspepsia should be allowed to go on his way without prompt operation as a preventative of malignant disease. Because there is no manner of doubt that the absolute cure of a fully developed gastric cancer is one of the rarest things in surgery; it is, in fact, almost unknown. One or two patients have been known to survive gastrectomy for carcinoma for as long as eight years, and to be still in good health when last reported; but the patients who have most chance of ultimately remaining free from recurrence are those who have been subjected to gastrectomy before the diagnosis of malignancy could be made through the unopened abdominal wall.

I do not intend to argue here the advisability of operating on cases of gastric cancer on the ground that life will at any rate be prolonged and death rendered less unpleasant by this form of treatment, even though radical cure be not anticipated. I consider this a very sound reason for doing the operation; indeed so far as statistics up to the present are concerned it is a reason for operating on these patients which has more in its support than any other; and in those rather unusual cases of gastric carcinoma in which the symptoms develop suddenly with no previous history of gastric dyspepsia, a patient past forty years of age becoming suddenly afflicted with anorexia, rapid emaciation and tumor formation — in such cases, I repeat, it is the only reason which justifies operative interference at all, since in such patients permanent and total cure is all but unknown.

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On Sept. 30, a memorial to Semmelweis was unveiled at Budapast.

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[5] Surgical Aspects of Digestive Disorders, 1905.

[6] Op. Behandl. d. chron. Magengeschwurs, Prag., 1904, s. 24

OBSERVATIONS IN ONE THOUSAND ADENOID OPERATIONS.*

BY FRANK B. SPRAGUE, M.D., PROVIDENCE, R. I.

The adenoid condition is one which is becoming increasingly familiar to the public as well as to the medical profession; so much so that there is almost a danger of "fadism" on the part of the laity, and charlatanism in some sections of the profession; and even between these extremes the operations are attempted by those who are unacquainted with the operative field and its adjoining structures, and others who have some anatomical knowledge but no technique, which is very necessary for careful, safe and complete operation. Certainly, no surgeon would think of performing an operation on a part, the anatomy of which he was not familiar with, or where the results of a poor operation would be visible to the family and friends of the patient. Yet some do not hesitate to plunge into the dark depths of the throat, stir up a lot of bleeding and mutilate the anatomy, which, although it may not be seen by any one, is, nevertheless, a constant source of annoyance and sometimes of serious trouble to the patient.

It has been my privilege to witness this operation in several of the larger throat clinics of Germany, England and the United States, and I have thus been allowed a choice of method from the dry scrape with the Gottstein curette without an anesthetic; and a decidedly wet operation in the recumbent hanging head position, where it seemed as though the child would drown in its own blood.

The relation of this subject to the family doctor is one of the greatest importance. There is yet a remnant of the generation of doctors who, ignorant of the irreparable damage done to the mouth, throat and delicate structures of the ear during the years of the growing child, discourage operation, advising that the child will outgrow the trouble. Then some of the younger generation advise operation indiscriminately; and again, we have a few odd examples like the man who says every child should be operated upon three times before it can be cured; or the man who simply lacerates the growth in very young children with his finger nail, telling the parents that another operation will be necessary in a few years for a cure of the condition. Then, too, there is the extremely careful man who removes the tonsils at one operation, and the adenoid at a subsequent operation; and the extremely thorough man who takes out everything there is, sometimes leaving the bone bare, sometimes removing the Eustachian tube cartilages. There is one case I have in mind of a colleague in a neighboring city who was consulted by a physician in behalf of his own child who had intermittent attacks of deafness. When told that his child had adenoids, he said, "Oh, if it is adenoids I can remove them myself." And so he did; but when the deafness increased, my friend was consulted again, and on examination under ether found that both Eustachian cartilages had been torn out by the roots leaving a permanent atresia of both Eustachian tubes which meant permanent deafness to the child.

One of the functions of the family doctor is to do his part in directing the care of the children of his clientele in such a way that they will grow up to be vigorous, healthy children with as good-looking physical form and as well developed mental powers as nature intended for them that they might be useful members of society and a help rather than a burden to the world; and there is no condition of diathesis or disease which can abort the good, distort the beautiful, and prostitute the useful like neglect of the adenoid condition. There is probably no condition of childhood which plays so important a part in the causation of febrile conditions, aside from the exanthemata. Many of the obscure and otherwise inexplainable attacks of febrile conditions in children up to eight years of age are due to acute inflammation of the adenoid tissue. I think it is safe to say that all earaches occurring in children under ten years of age, and the periodical earaches which occur in the night, keeping the child awake for several hours, then subsiding for several hours and perhaps days, but repeatedly recurring, are due to temporary closure of the Eustachian tube which results from adenoid congestion following some slight exposure. The intermittent attacks of deafness which accompany a cold in the head are due to milder degrees of the same condition. Nervousness, peevishness and all sorts of nervous phenomena and lowered vitality generally, can often be traced to this diseased condition of the lymphatic glandular system of which the adenoid area is the seat of infection. So, if the family doctor would be well equipped to cope with the diseases of children, he must be well acquainted with the adenoid condition which plays so important a part in the list of predisposing causes of some of these diseases.

It is not my purpose in this paper to go into the symptomatology of this adenoid condition, for the books will supply this information better than I can, and you are all, doubtless, already familiar with the common symptoms. Aside from the complaints and symptoms which are so common and mark with monotony the vast majority of cases, there are occasionally subjective manifestations of peculiar interest and also prominent objective symptoms which help in making diagnosis without resorting to the shocking and disgusting method of digital examination of the naso-pharynx which becomes a lasting horror to the child and causes it to dread the presence of the doctor.

I do not wish to burden this paper with statistics, so I will use as few as possible, confining myself to what seems the essential ones which have real value. These one thousand cases were about equally divided among the two sexes, there being 503 male and 497 female. The age limit ranged from six months to thirty-seven years. The largest number at any one age was 64 cases at eight years of age. Dividing the age limit into periods of seven years each, about 30% were during the first seven years; 50% during the second seven years, and 20% during the third period of seven years; there being only 28 cases over twenty-one years of age; 13 of these being over thirty years old. In 905 cases, or about 90%, the adenoids were associated with hypertrophy of the faucial tonsil, some with but a slight degree of hypertrophy, and others enormously enlarged. In these cases there was also more or less hypertrophy of the whole pharyngeal lymphoid ring. The remaining 95 cases had the hyperplasia of the naso-pharyngeal adenoids alone.

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* Read at a meeting of the New England Otological and Laryngological Society, Jan. 19, 1906.

ETIOLOGY.

Investigation as to the cause of the trouble did not lead to very satisfactory results. Five cases were dated to attacks of diphtheria, 5 to whooping cough, 7 to measles, 5 to scarlet fever, 1 to mumps, and while the diseases of childhood undoubtedly help in the causation of this hyperplastic lymphoid condition, the data are so incomplete and negative, and so many children have enormous growths who never had any of the exanthemata that their importance in the etiology of the growth is not great.

I have looked up the matter of climate, residence in city and country, infant feeding both by bottle or the breast, sleeping in cold or hot rooms, the relation of inherited tendencies like tuberculosis, syphilis, rheumatism and uric acid diathesis, but I do not see that any of these have a specific bearing on the subject, although they may, any one or more, have their influence and doubtless do. So my only answer, imperfect as it may be, is that the adenoid condition is an excessive activity of the lymphoid tissue of the pharynx, at first normal, stimulated by constant irritation from particles of dust or secretions with mild infection; the rapidity and development of the growth being governed by the atmospheric, climatic and constitutional conditions and of personal hygiene.

SYMPTOMS.

(1) *Subjective.* — The evidence of trouble as described by the parents of young children or by the older ones themselves are numerous, but the more frequent are, — repeated colds in the head, difficult breathing, mouth breathing, snoring, cough, croup, hoarseness, tonsillitis, asthma, thick speech, patient cannot blow the nose, discharge from the nose, periodical earache, intermittent spells of deafness, intermittent purulent discharge from the ears, nervousness, restlessness, especially at night, mental dullness, headache, epileptic seizures, night sweats, frequent feverish conditions, often quite a high fever, periods of malaise, and attacks of nausea, gagging and vomiting which are often attributed to digestive disturbances.

(2) *Objective.* — Face: Deformed face and more or less typical adenoid expression. Mouth: Hard palate high arched, teeth are irregular. Nose: Improperly developed both outside and inside. *The nasal fossæ*: Deviated septum with ridges, erectile turgescence of the turbinals, turgescent spot on the floor of the nose; I would not say hypertrophy of the mucous membrane, for I am doubtful if organized hypertrophic tissue exists in very young children. Ears: Dullness of the drumheads, light spot absent or only faintly visible. Chronic suppurative otitis media with more or less destruction of the drumhead. Serous otitis media and acute otitis media. Neck: Glands larger than normal and sometimes greatly enlarged although on the whole the lymphatics of the neck, axillæ and groin were not much changed. For a time I examined these regions carefully while the patients were under ether. Chest: Deformed chest. Chicken breasts are not as frequent as might be supposed. Throat: Thickened and sometimes nodulated faucial pillars and uvula, enlarged tonsils, enlarged follicles on the posterior and lateral wall. Voice is deadened, lack of nasal resonance and frequently hoarseness.

DIAGNOSIS.

Diagnosis is easy in typical cases which show the facial expression and the effects of mouth breathing which are easily recognized by every one. About 50% of the adenoid cases are mouth breathers, the remainder have little or no difficulty in breathing except perhaps when the patient has a cold; but in these cases either the ear symptoms are prominent or the effect of the growth on the general health is evident. Other important indications showing the presence of adenoid growths are the intermittent attacks of deafness and earache in children. Whenever these conditions are present we may be quite sure that adenoids are responsible for the mischief as nothing else would cause it. The appearance of the drumhead is an important help in diagnosis as in almost all cases where the ears have been affected at all, and even in a large number of cases where there have been no ear symptoms, the drumheads are dull and the light spot is absent or only faintly visible. The chronic suppurating ears of childhood, which are not dated to an attack of scarlet fever or measles, are always suggestive of adenoids, and in such cases the chance of curing the discharging ear without the removal of the adenoids is very small. Probably 50% of all inflammatory diseases of the tympanum are due to adenoids. Another helpful sign in diagnosis where neither breathing nor ear symptoms are prominent is a small area of swollen mucous membrane on the floor of the nose about on a line with the anterior end of the inferior turbinal. My attention was called to this about ten years ago by Dr. Lenox Browne, of London, who said that to him it was always a positive indication of the presence of adenoids; and in my experience this has proven an unfailing sign when present. The presence of hypertrophied faucial tonsils is always an indication of the presence of adenoids. For more than ten years I have not used my finger in determining the presence of adenoids as it is unnecessary and it is not always reliable.

The contraction of the superior constrictor muscle of the pharynx grasps the finger and it is impossible to determine whether you are feeling an adenoid mass or muscle or other soft tissues On the other hand, the deep recess which is so often present just above the tubercle of the atlas may contain an enormous amount of adenoid tissue which the examining finger may not touch at all. It is a horror to the little patients to have the throat examined in this way, and when we can easily make a diagnosis by other means, I do not think we should subject our little patients to such barbarism.

The rhinoscopic mirror is frequently useful as an instrument in verifying a diagnosis and it can be used easily in many cases.

THE PREPARATION OF THE PATIENT.

The preparation of the patient in a general way is the same as for any surgical operation. The alimentary canal should be as empty as possible and an absolutely empty stomach is best. Milk and solids should be avoided for at least six hours. If diphtheria is in the neighborhood of schools, cultures should be taken from the nose and throat to see that there is no possibility of diphtheria bacillus being present. The patient must be free from acute inflammation of the nose and throat or air passages, and purulent disease of the nasal accessory sinuses; and if any of the family have ozena or purulent inflammation they must be kept away from the patient after the operation until the healing is complete. It is not wise to operate within a week or ten days ofter an attack of acute tonsillitis, or several months after syphilitic inflammation. Purulent disease of the teeth and alveoli should also be carefully considered.

These general conditions being observed, the coast is clear for operation, and the patient's head is covered with a towel or rubber cap securely fastened, and all is ready for the anesthetic.

ANESTHETIC.

All but two cases of this series were operated on under ether anesthesia. A few cases were started with nitrous oxide gas, but on the whole, I think clear ether is better, as the adenoid cases always require more ether than others, and it is necessary to have the system saturated with it before beginning the operation. Then, too, I think nitrous oxide congests the vessels of the head and increases the bleeding. It is very necessary to have the throat perfectly relaxed, as any gagging and contraction interferes with the clear and easy removal of the growth and endangers the continuity of the soft parts of the pharynx. It is very important that relaxation is complete for the removal of the tonsils, as any interference here renders a safe and satisfactory removal of these glands impossible. Anesthesia must not, however, be carried to the profound stage, as we need the laryngeal reflex to protect the air passages against the invasion of blood clots. The absence of the eyelash reflex is not a sufficient indication of the complete anesthesia, as the pharynx remains active some minutes after the eyelash reflex is gone. I would discourage the use of the cornea reflex as I have seen eyes most unmercifully poked by the anesthetist's finger.

If we could know just what condition existed before anesthesia, nitrous oxide or chloride of ethyl or somnoforme would be ideal anesthetics, but while some cases require only two or three minutes, the majority require ten minutes and sometimes longer to do a clean operation; and in one case recently it was thirty minutes before I could get the throat clean, the growth being spread about so diffusely and the patient was taking ether poorly. But I always like to feel that I have plenty of time even if I do not need to use it.

Chloroform is especially dangerous in adenoid cases, as they belong to that class of cases known as the habitus lymphaticus, in which chloroform is contra-indicated, and in which most deaths from chloroform narcosis have occurred. Twenty deaths from chloroform in adenoid and tonsil operations have been reported since 1890, and I know of one case in Providence which could be added to this list. Knowing this, I do not think we are justified in taking the risk. In one of my cases the family physician who was to anesthetize was very anxious to give chloroform, and when I refused to operate under such conditions, he wished to know my reasons, and after I had given them, he said that he had had large experience in the use of chloroform anesthesia and he remembered alarming symptoms in adenoid cases and what he considered narrow escapes from death, but he thought it was simply a coincidence and not that it was an adenoid idiosyncrasy.

The two cases operated on without anesthesia were one, a boy of five years who had been a "blue baby," and had a bad heart; and the other a youth of fourteen who wanted it done without ether. The former, fortunately, had a growth suitable for a quick operation; the latter was done at two sittings. I have seen many "adenoid scrapes" in the Vienna clinics and the various clinics in Germany, but our people would not stand for such operations, and I do not believe they are thorough. In England I have seen many operations done with nitrous oxide gas which seemed more suitable than the continental method, but they are necessarily hurried and in some cases could not have been complete.

POSITION OF THE BODY.

My first operations were performed with the patients in an upright position held in a chair by the assistant, but the difficulty of always securing the proper assistants who could hold the patient well, and the special difficulty of handling the larger patients and the possible danger of the blood clots or particles of growth getting into the larynx, led me to try a position which seemed to answer all the requirements of safety and convenience, and in which any one could hold the patient.

After anesthesia is complete the patient is turned on the right side resting on the right shoulder, with both shoulders in a perpendicular line; the right hand pulled back out of the way so the patient can be easily turned forward in case of vomiting, or to allow the blood to flow out of the mouth and nose. The head is allowed to hang loosely toward the table or rest upon it. This allows the blood to flow out freely, leaving the throat free from accumulation of clots, as is always the case in the position where the head is hanging over the head of the table. The table must be placed in such a position as to allow the patient to face a window with good light exposure. My own position while operating is parallel with the upper part of the patient's body as nearly as possible, which gives practically the same relationship as when the upright position is used. It is best to have a fairly high table which can be made in any house with a kitchen or laundry table with the small section of a mattress placed upon it.

INSTRUMENTS AND TECHNIQUE.

Among the instruments a good mouth gag is very essential, one that is self retaining, will not slid and does not press on the jaw in a way that interferes with the breathing. For many years I have used the O'Dwyer Gag, which, while not answering all these requirements, was the best to be had. The Jansen Gag, with some few alterations which I have made, seems to answer these demands and is a useful instrument. A simple palate retractor which protects the palate as well as enlarges the space for operation, so that the growth may be partly seen; forceps after the Hooper pattern, but a little larger, also Lowenberg's and other patterns to fit the peculiarities of individual cases, for no one instrument is suitable for all cases. I lately devised a forceps which suits my fancy better than any one of the others, and being made in four sizes is applicable to a greater variety of throats.

After the palate retractor is placed in position, the forceps are introduced and closed on the growth, then the palate retractor is removed, and holding the grip of the forceps in the left hand, the forefinger of the right hand is slid along the blade and the tissue which has been grasped by the forceps is separated from the pharyngeal wall by a to and fro motion of the index finger of the right hand. This avoids any unnecessary laceration of the mucous membrane and protects the muscle and fascia from injury, and if other parts are accidentally included, it is very easy to release the forceps and make a new application of them. This process is repeated until all the redundant growth is removed. For reaching behind the Eustachian tubes in the fossa of Rosenmüller the narrow-bladed forceps are used, and what is left is scraped with the finger nail of the index finger of the right hand, which is kept in readiness for just such purposes. I consider it of the greatest importance to carefully clear the fossæ of Rosenmüller, otherwise a safe condition of the ears, and good hearing cannot be assured. After all is removed, the area is smoothed up with the finger nail; rarely is the curette used. The Gruber curette is to my mind the best of all. If the curette is used, we must always bear in mind the possibility of wounding the tip of the tubercle of the atlas which protrudes very prominently into the throat in a large percentage of cases. Let the curette be used carelessly or forcibly drawn over this tubercle, and it would be an easy matter to remove all of the soft tissue to the bone.

The tonsils are always left until the last unless they are very large and obstruct the way. For several years I used the Matthieu Tonsillotome but found it an unsatisfactory instrument for tonsils which were submerged or which did not project beyond the faucial pillars, and even in very large tonsils it is impossible to do more than cut them to a level with the pillars. For the past ten years I have used the Baginsky Tonsillotome, which is a guillotine model with a ring trip. These are made in three sizes, the openings which engage the tonsil being three fourths, seven eighths, and one inch in diameter. The smallest size is the most useful for the deep tonsils, and I have had a special size made one-half inch in diameter which is invaluable for removing the tissue deep in the tonsil bed and in the supratonsillar fossa. This instrument is simple in its construction; it may be used on either side, quickly changing from one side to the other and easily cleaned, with nothing to break or get out of order. Using the different sizes, I have been able to remove as much tissue as seemed necessary in any given case. The small size is always used to clean out the supra-tonsillar fossa and other prolongations, giving a normal appearing throat in most cases after it is healed. It is often, perhaps always, necessary to make several applications of the tonsillatome in order to make a thorough removal. When the throat is thoroughly relaxed, the tonsil can be pulped as it were into the opening of the instrument and a piece removed at each application until one is satisfied that the fossa is clean. Here again is where many operations fail to improve or give relief to ear conditions. The supra-tonsillar fossa must be thoroughly cleared of tonsillar tissue.

I have made some use of the tonsil punch, but can do better in most cases with a small guillotine. I have used the snare but very little; it leaves a sore throat for a longer time than the guillotine. It is too slow for me and the question of hemorrhage which I suppose is its chief end is not eradicated as cases of serious hemorrhage have been reported after its use.

Immediately after every operation as a safeguard I make an application of glycerite of tannin to the denuded area of the pharynx and fauces.

Other conditions operated on at the time of the adenoid operation were: Nasal polypi, 1 case; fibroma, 1; deviated septum, 6; ridge of septum, 4; posterior turbinal hypertrophes, 2; caries of the tympanum, 3; carious ossicles, 26 cases; incision of drumhead for acute otitis media, 5; mastoid abscess, 2; phimosis, 6 cases.

AFTER-TREATMENT.

After-treatment may be divided into two periods, the immediate and the future. After the patient has recovered from the anesthetic, and nausea and vomiting have ceased, cracked ice and cold water are allowed. A little later, cold milk and an article of food which pleases most children, ice cream. Hot drinks and hot food are avoided as they encourage bleeding, while the cold materials tend to prevent it. After the first twenty-four hours the usual diet is allowed. The patient is kept in bed for twenty-four hours, and in the house at an even temperature as nearly as possible for three or four days, according to the time of the year and the condition of the weather.

The patient is seen in ten days or two weeks, by which time the throat is about healed. The future treatment is sometimes necessary, as the lowered vitality and the lymphatic habit tend to make complete results slow. Then, too, the local conditions must be looked after. It is very necessary to see that the ears resume their function naturally, that discharging ears cease; otherwise permanent deafness and serious trouble may result. The engorged condition of the turbinals must be corrected as quickly as possible in order to establish nasal breathing. This usually corrects itself in a few weeks after the operation; but the parents should be instructed that if the mouth breathing continues after one or two months, the patient should be examined. This condition of persistent mouth breathing is often attributed to recurrence, but it is more often due to the engorged condition of the turbinals, which is so common when adenoids are present and which often persist for a long time after they are removed.

The good results of an operation are not always immediately realized; sometimes several months are required before nasal breathing is fully established. It frequently happens that the parents will complain that the child is no better, or breathes with his mouth open, and is just the same as before the operation. This may happen a year or two after an operation, and they think, or they have been advised, that the growth has recurred, but a few applications to the nasal mucous membranes will restore nasal breathing unless there has been some bony or cartilaginous obstruction left in the nasal fossa. It is very true that many breathe through the mouth after operation for a long time, but this is readily accounted for by habit. The muscles of the jaw which have been relaxed so long do not always readily resume a normal condition; but if the parents are persistent in correcting the child, this habit will soon be overcome. In some cases, however, it may be necessary for a time at least to hold up the jaw with a piece of tape.

COMPLICATIONS.

Hemorrhage. — The adenoid and tonsil operation is necessarily a very bloody operation, but I have been especially favored in not having any serious hemorrhage in these one thousand cases. There were no cases of serious primary hemorrhage, but one case had an alarming secondary hemorrhage five days after the removal of one tonsil in an adult patient, but this was checked with ice and glycerite of tannin.

Infection. — It would seem that a large open wound would become infected while healing, but I have had but two cases which have shown any disturbing symptoms of infection. These were both in the same family, occurring a year or more apart. The mother of these children had ozena.

Earaches. — Some have reported earaches as frequently following the operation, but I have not had any which were due to the operation, although I have had three cases which had an acute inflammation of the ear three or four days after the operation, which could be readily accounted for by exposure immediately after the operation, while taking the child home from the hospital.

As I believe that all acute middle ears in children are due to adenoids, barring the otitis complication of the exanthemata, and I think these are often caused by the growth, I have many times removed adenoids while the child has had acute middle ears, and have, I believe, prevented serious trouble with the ears. And twice in a mastoid inflammation I have removed adenoids and tonsils, and I am sure that the depletion and freeing of the Eustachian tube together with a free incision of the drumhead, saved the mastoid operation. It might be considered unsafe to make such a large exposed surface in the presence of purulent disease in the ear, but I have removed adenoids in thirty-six cases of middle ear inflammation and have had no infection.

RESULTS.

The effect of the operation on the general health is, in nearly every case, very pronounced, and in some cases truly marvelous. Nature seems delighted to be rid of this offending material. It seems as though a heavy weight had been removed from the child's body, as though a life that had been in bondage had been set free. The pale, sickly, poorly-nourished children begin to grow in all directions, their bodies show better nourishment, the once flabby flesh becomes firmer, the skin shows a better color, the stupid, vacant facial expression gradually disappears and a more normal physiognomy is establisehd; and in the deformed faces of mouth breathers, if the condition has not existed too long, there is a decided change for the better as soon as nasal breathing is established. In the children under twelve where the ears have been involved, there is usually a restoration of the hearing function. In some cases, however, after-treatment of the ears is necessary. In the suppurating ears, if there is no diseased bone, the otorrhea ceases in a short time. The whole scene, in fact, is changed; the nervous, irritable, peevish disposition soon fades away and the child seems like a new being. The night scene is a decidedly changed one, the restless tossing about in bed, the snoring and struggling for air is replaced by peaceful, quiet sleep. All things considered, there is no medical or surgical transaction which will call forth more expression of gratitude and praise for the physician than this operation when successfully performed.

RECURRENCE.

I was called upon to operate the second time on two of my cases because other specialists had said the growth had recurred after my first operation, and the parents wanted another. In the first case, two years after the first operation, I found a piece about the size of a pea in the vault of the pharynx, otherwise the throat was smooth and clean. The second case in a doctor's family, one year after the first operation, the throat was found entirely free from growth and in a perfect condition. One case which was operated the first time at the age of six months was again operated at four years old, and a typical growth of adenoids and tonsils were present. I have seen three cases where the tonsils, which were not completely removed, increased in size within two or three years after operation. Aside from these examples I do not know of any cases of recurrence in my cases. I have operated fifteen times on cases previously done by others, and in every case showed that the first operation was not well done and the growth which had been left had continued to grow, so that the symptoms had only been temporarily relieved. Five cases were the result of the finger-nail operation in which the mass had been simply lacerated. In these cases the growth was as large seemingly as though it had never been touched, and in much worse condition on account of the mesh of cicatricial bands resulting from the tearing of the growth with the finger-nail. One case of forceps operation where the fascia and muscle tissue had been torn from the posterior lateral wall of the pharynx leaving a bad deformity, but the adenoids were left in the vault of the nasopharynx and the tonsils only partly removed. While one can see how in so-called scrofulous children, or in children operated before the normal development of adenoids is complete, as under a year or so of age, that it might be possible for a new growth, but if all redundant lymphoid tissue is carefully removed, I believe recurrence to be an extremely rare condition.

Note. — Through an error, the discussion of this paper was published in our issue of last week.

KILLIAN'S OPERATIONS. [*]

BY HARRIS P. MOSHER, M.D., BOSTON.

Killian's operation for chronic suppuration in the frontal sinus and in the ethmoid cells is the most radical operation which we have. It has the advantages of radical measures in that it offers a greater chance of a cure, but it also has the disadvantages of radical surgery, especially radical surgery of the face and head, in that it can cause much disfigurement. Such an extensive operation cannot be used as a routine, but must be used for selected cases. Looking back over the twelve cases of frontal sinus disease which I have done in the last year — the cases which are suitable for Killian's operation are divided into two groups.

The first group.— The chief features of the cases which belong to the first group are the eye symptoms. The patients come first to the eye clinic. The striking symptoms are exophthalmos and ethmoid tumor; that is there is a swelling at the inner angle of the eye just above the inner canthus. Both symptoms may be present in the same case, but, as a rule, one symptom is the more marked of the two. So far in the cases which I have seen, both symptoms have been present together in but one case, and in this case, the ethmoid tumor was more marked than the exophthalmos. One is surprised in these cases to find that pain is very inconstant and does not form a prominent feature in the history. What is even more surprising, I think, is that nasal symptoms also may be slight or even wanting. That is, you get no history of a one-sided discharge of pus from the nose, and on examination you find no pus in the middle meatus. Further, I have found the middle turbinate normal as often as I have found it enlarged or abnormal. I say that a Killian operation is indicated in these cases because when you operate you find that nature has practically done this operation and forestalled you. In my first case where the chief symptom was ethmoid tumor, the upper half of the nasal bone had been necrosed away and in like manner the floor of the frontal and the anterior two thirds of the os planum. As the frontal was very small I did not need to take off the anterior wall. The whole ethmoid labyrinth had been turned into one cavity which was filled with gelatinous pus. All that was left for me to do was to evacuate the pus from the ethmoid tumor and to remove the middle turbinate.

In my second case there were both exophthalmos and ethmoid tumor. Here the operation findings were practically the same as in the first case. The frontal was small. Its floor had necrosed away as well as the greater part of the os planum. However, there was a little more left for me to do than in the first case. I had to remove the anterior wall of the sinus and the upper part of the nasal bone, leaving the usual bridge between. The floor of the frontal had been eaten away flush with the posterior surface of the bridge so that that important part of the operation, the removal of the anterior part or the anterior internal angle of the floor of the frontal, that portion of the floor which abuts against the back of the inner end of the bridge, also had been accomplished by nature. Dr. Jack had a nearly similar experience, as he will undoubtedly tell you, in a case at which I had the pleasure of assisting him recently. In this first class of cases, therefore, it is easy to see that the Killian operation is the operation of choice.

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[*] Read at a meeting of the New England Otological and Laryngological Society, Jan. 19, 1906.

The second group. — Cases which belong to the second group cannot, like the cases of the first group, be picked out, as it were, at a glance. These cases, as a rule, do not come first to the eye clinic, but to the nose and throat clinic. Their chief symptoms are pain and unilateral nasal discharge. Examination shows pus in the middle meatus and evidences of ethmoiditis. Such a case, in order to be a suitable one for the Killian operation, should have to my mind a large sinus and preferably a large sinus with septa and an orbital prolongation. There should be a marked ethmoiditis which intranasal work has failed to clear up,or if it has cleared up the themoiditis, the suppuration in the frontal sinus should remain unchanged. Naturally, it is not so easy and it requires more investigation, to say that a case is a fit one for the second Killian group.

I think that the chief advantage of Killian's operation lies in his treatment of the ethmoid cells. From the anatomical as well as from the therapeutic standpoint the ethmoid labyrinth is the keystone of the sinus arch. We shall never get over our fear of the cribriform plate. In this operation we get a splendid view of it as it mounds down to join the top of the septum. One is surprised to see how low it comes. At this point it is an eighth of an inch above the inner canthus of the eye. It seems, however, that we have been altogether too fearful of the inner wall of the orbit and of the orbit itself. As we have seen, nature does very radical work with the os planum, often destroying with apparent impunity the greater part of it. I cannot help wondering whether Killian did not take his hint from nature in developing the technique of his operation. It seems hardly possible to deal with the ethmoid cells more thoroughly than his operation does.

His method is applicable not only for reaching the ethmoid cells, but also for reaching the sphenoid. The ethmoid route is the most direct to the sphenoid. Now that the ethmoid route has been made so much more roomy by removing the great part of the inner wall of the orbit, I expect to see an increase in the use of this route for dealing with the sphenoid.

Technique of the operation. — Killian and Coakley do not shave the eyebrow because they say that it may not grow out the same as before the operation. In discussing Dr. Coakley's paper last summer, I said that it seemed to me more surgical to shave the eyebrow. I still think that it is. I did not, however, fully realize what their experience on this point has been. It seems, if I am rightly informed, that in their experience the eyebrow may either fail to come out at all or may grow so fiercely as to resemble a mustache. Such possibilities are a sufficient reason for not shaving the eyebrow especially as the wound does not get infected more in one case than in the other. I do not see the advantage of the metallic suture over ordinary silk-worm gut.

Instruments. — A slender (curved on the flat) retractor is practically essential for retracting the orbital contents well. Killian uses two V-shaped chisels, one for the frontal bone and one for the nasal bone. With the larger one he makes a groove parallel with the orbital rim through the frontal wall down to the mucous membrane of the sinus. This done he attempts to remove the anterior wall of the sinus without perforating the mucous membrane until the last. I do not see the advantage of this procedure. The mucous membrane has to come out finally so that it might just as well be perforated first as last, and the operation shortened. I can imagine that the V-shaped chisel might perforate the anterior wall of the sinus with less risk of breaking the part which is to be felt for the bridge in cases where the bone is very thin or brittle.

The smaller V-shaped chisel is used for marking out the part of the nasal bone which is to be removed. Here, again, the operator tries to save the underlying mucous membrane in order to use it to make a flap for covering a part of the denuded ethmoid region. At present, I feel that in practice it will hardly be found worth while to save this flap. A little over two years ago I saw Jansen doing this same thing with a flap of mucous membrane in the antrum. In his cases the flap usually sloughed out. I feel that this will happen in the ethmoid region. If, however, you wish to preserve the flap under the nasal bone and to remove the bone without splintering it you can accomplish this much quicker and just as neatly as with the special bur which is designed to take out a button from the skull and uncover the dura without perforating it. If the nasal bone is perforated with the ordinary chisel there is great danger of splintering it, and of removing too much.

Killian takes out the os planum back to the anterior ethmoidal vessels. In the living with all the bleeding I have found these hard to recognize. These vessels are about an inch and a half from the center of the side of the nasal bone.

In American clinics the question of deformity has to be considered very seriously. If a large sinus is operated by this (Killian's) method I am convinced that even after paraffin the amount of deformity is very considerable. If a small sinus is done by this method it is not. In judging the operation, therefore, from the standpoint of deformity, you must take into consideration the size of the sinus. In the next few years you will be shown many an operation of this kind with little or no deformity, if the sinus was a small one. If you have a large sinus which needs this operation, do it, but do not delude yourself into thinking that there will be no deformity. The price of a cure in a large sinus is noticeable deformity. In operating on the cadaver I have found that there was a tendency to take away too much of the nasal bone. It is sufficient to take away the upper half; if more is taken away the side of the nose is conspicuously flattened.

The even cup-shaped deformity left after doing a Killian on a large sinus I can readily see would be less noticeable than the pit-like depression which often follows the healing of a small sinus obliterated by the granulating method.

There seems to be little need of fear of injuring the lachrymal sac. If you separate it cleanly from the upper part of the lachrymal groove and do not lacerate it, it comes back into place with the rest of the orbital contents without any disturbance of its function.

There are certain cases where even the Killian operation cannot deal with the whole of the sinus. I mean those cases where the orbital prolongation extends back over the whole roof of the orbit. Here it is impossible to break down the posterior part of the frontal floor. I think, probably, that it will be found sufficient to break down the anterior part of the floor, especially the anterior internal angle back of the bridge.

Those men who have followed Killian's results in his clinic say that it is common to have a diminishing amount of nasal discharge persist for some months. This is rather to be expected when one considers what a large denuded surface there is in the ethmoid region which has to be recovered with new mucous membrane.

Just a word or two more, Mr. President, and I have finished. Last summer I began to use x-ray plates as a routine in all cases of sinus disease. I have found them of the greatest help. I have been fortunate enough to have them show not only the size and location of the frontal sinus, but in certain cases they have shown the presence of disease.

In cases of chronic frontal sinus disease there is no routine operation. With certain men the Ogston-Luco operation is practically a routine procedure; with other men, and, until lately I have belonged to this group, the granulating method has been used to the extent of routine. I have been surprised to find in some of my cases that the simpler method of opening the sinus, removing septa and the mucous membrane, and then making a large opening down into the nose has succeeded. I feel, therefore, that in the future I shall try, in suitable cases, the simpler methods more than I have in the past. If they succeed I shall do the patient a great favor. If they do not the more vigorous measures are still open. Do not misunderstand me, I am heartily in sympathy with the radical method of operating In certain cases it is the only operation which will cure or approximate a cure. I say approximate a cure, because the more I see how hopelessly complicated the anatomy of some of these cases is the more I feel that in many of them to approximate a cure is the best that can be done. To conclude, my experience for the last year convinces me that in certain cases the simpler methods of operating for frontal sinus disease are still worth a preliminary trial. Give them a trial, but do not make them an excuse for temporizing. If they fail at once use either the granulating method or the method which goes under Killian's name.

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After the opening of the Institute of Cancer Research at Heidelberg, on Sept 25, an International Conference on Cancer was held at Frankfort-on-the-Main on Sept. 26 and 27.— *Science.*

HYSTERIA FROM THE POINT OF VIEW OF DISSOCIATED PERSONALTY.

BY MORTON PRINCE, M D , BOSTON,
Professor of Diseases of the Nervous System, Tufts College Medical School.

(Concluded from No 14 p. 376)

Most instructive cases are, like III and IV, where an artificial interference caused a sudden return to the normal condition, and yet, owing to the prevailing misconception of the nature of hysteria, the true state of affairs was not recognized. The first abnormal personality, perhaps because recognized as an hysteric, was regarded by the reporter, Dr. Jules Janet, and has always been described by subsequent writers as the normal state or personality, while the completely normal person who was artificially restored was, in consequence, regarded as a secondary (dissociated) personality. The same erroneous interpretation has been given to Dr. Azam's case (V). The error is a natural one, and the logical sequence of the failure to recognize that hysteria is a dissociation of personality, and that any hysterical state must be to a greater or less extent a secondary personality.

On the other hand, if hysteria is to be regarded as the " normal " personality (no matter how abnormal the patient really is), then, logically, when a sudden reversion to another state occurs, the latter, even though a perfectly healthy individual with normal memories, must be regarded as a secondary personality. The confusion of ideas is obvious. The point is sufficiently important to warrant the following brief abstracts of these classical cases:

Case III, Marcelline R., studied by Dr. Jules Janet and frequently referred to by Dr. Pierre Janet, from the age of thirteen had been a miserable hysteric of the extreme type. Among other troubles she had crises, anesthesia, paralysis, chorea, etc., and she was affected by uncontrollable vomiting, which threatened her life. Here was a classical case of hysteria without amnesia. There was nothing to suggest that such psychophysiological alterations as had occurred were identical in kind with those which are observed under other relations as secondary personalities, and in fact the patient was regarded as a normal personality, although abnormal in health. Now for therapeutic purposes a device (suggestion) was employed to change her mental state. This change was easily effected in mass, and a state was obtained in which mentally and physiologically she was perfectly normal. All the stigmata, including the anesthseia, the paralyses, and the previously uncontrollable vomiting, disappeared. Her health was immediately restored and her mind seems to have been normal, both in the absence of abnormal manifestations and in intellectual capacity, for she passed successfully a written examination for the position of hospital nurse, although she had previously failed to pass it in her original or so-called " normal " state. Whether in the new healthy state she remembered the previous hysterical state is not specifically stated, though implied; but when she was brought back to the hysterical state she had complete amnesia for her new normal condition, though her memory for her previous life continued as before. The method employed for obtaining the new normal state was that which is used for hypnotizing a person, and for that reason it was supposed that the new state was one of hypnosis. Plainly, however, the hysteric was "waked up" (synthesized); it was not a dissociated state as in hypnosis, but one which included the normal functions of the body and the intellectual faculties; in other words, the normal healthy person had been restored.

Here was a case, which does not stand alone in literature, where, owing to a misconception of the meaning of alteration of personality, a secondary personality had been mistaken for a normal personality with stigmata, and a normal personality without stigmata for a secondary hypnotic personality. The first condition of Marcelline R. was that of a typical hysteric, but, from another point of view, it was a typical secondary personality without amnesia, resembling in every way B I of Case I.

Case IV, known as Blanche Witteman, when first observed was an extreme hysteric, manifesting complete anesthesia in all its forms, —paralysis, amblyopia, deafness, limitation of the field of vision, contractures on irritation of the skin, etc. Her memory was apparently continuous for her whole life, and, therefore, there was no reason to depart from the ordinary point of view and regard her as other than an hysteric. The true relation of such a condition is not seen until it is reconverted to normality. In this case this was done approximately, if not absolutely, by a device, and Blanche I was artificially converted into a condition in which she lost all her stigmata, and, excepting for one thing (a peculiar suggestibility, called electivity), appeared to be a normal person. "One would truly believe," the report states, "that he had to do with the waking state, and, indeed, with the waking state of a well person. The most skilled observer could not now distinguish Blanche Witteman from a normal, non-hysterical person. We have no longer before us a neuropath, an incomplete person, but truly a woman, in the full enjoyment of her nervous functions, . . . completely well and normal."

In this case again the hysteric was mistaken for the "normal" personality, while the nearly normal person, suddenly restored in hypnosis, was mistakenly looked upon as an hypnotic and secondary personality. As the hysteric, and like the classical hysteric, Marcelline remembered her previous life; it was not seen that this state could be equally well regarded as a disintegrated and secondary personality. But, with the sudden restoration of the healthy person, Marcelline II (for whom the hysteric had amnesia), it is easy to recognize what had escaped attention, that the preceding state of hysteria was a phase of double personality.

Case V. The classical case of Félida X., reported by Dr. Azam, has been so frequently quoted by writers that its proper interpretation is important. A study of it in the light of the recent acquisitions to our knowledge of multiple personality shows that its original interpretation needs revision.

Félida, when she came under Dr. Azam's observation, was, like Marcelline R., an hysteric. As early as thirteen years of age she had manifested marked symptoms of hysteria, such as pains, hemorrhage from the lungs without organic cause, and various nervous troubles. That is to say, what in the light of after developments was erroneously called the "normal" or first personality, was already abnormal in health. When about fourteen and a half years old she developed for the first time the second state, which was one of health. At frequent intervals during thirty years this alternation in mass of the "normal," hysteric and healthy state and doubling of personality was observed. The symptoms of hysteria in the "normal" or first state (Félida No. I) grew worse until she became an hysteric of an extreme type. The abnormality of this first state may be appreciated when it is remembered that the patient is described as sad, even morose. Her gloomy manner and disinclination to talk were particularly noticeable. She answered questions, but that was all. Her higher feelings seemed to be little developed. She was spiteful and made violent scenes in her home. Indeed, her supposed "normal" character was a source of unhappiness to herself in her second state which remembered her first hysteric state.

The first state manifested the following symptoms: delirium, convulsions, pains, hemorrhage from lungs (hysterical), paralysis, contractures, lethargy and trance. Surely, this is not a normal *personality* — I do not say *body*. If there ever was a disintegrated personality it was Félida No. I. Compared to her B I (Case I) was a normal person. Now compare the so-called "abnormal" second state with this. In the second state, as Dr. Azam recognized, all her faculties were more fully developed and more complete. All the physical ailments disappeared. She was well. Mentally and morally also she was different. She was gay, bright, with a happy disposition, and attended to all the household duties and responsibilities of life like a normal person. No one would have noticed anything unusual about her, etc.

Félida I, the hysteric, also like B I of the first case, and Marcelline I, had normal memory for her whole previous life, that is, antecedent to that period when she was restored to health as Félida II. From one point of view she was an hysteric, but it is clearly seen that when the second normal state was restored the hysterical state could be properly characterized as a phase of multiple personality.

A careful examination of the report of this case reveals the fact that when Félida first came under Dr. Azam's observation, at the age of fifteen, the real self had already become disintegrated, had disappeared and changed into Felida No. I, the hysteric, who, therefore, from this point of view, was not the "normal" personality, as supposed, but a secondary personality. [The transition had been gradual and, therefore, there had been no loss of memory. She had become simply an hysteric.] Taking the case as it stands, it is hard to see any other interpretation than that, when Félida changed to her second state, she waked up, so to speak, became her real self, and was well. It was this new state that was the normal person, and when restored to health (like the real Miss B. and the real X, in Gibson's case) remembered her previous secondary hysteric self, though the hysteric self did not know the new normal self. It is not to be wondered at that the first state tended to disappear more and more, until Félida remained, with few interruptions, in her normal second state.

A consideration of the phases of multiple personality other than those of the classical hysterical type would carry us too far at this time, and beyond the scope of a Journal article. Suffice it to say that some of these phases are characterized by an alteration of character, not obtrusively pathological in itself, and by amnesia (Cases XI and XV), rather than by physical alterations of health. Others show extreme modifications of character (Cases IX, X and XIII), sometimes without physical stigmata. On ultimate analysis it can be shown that all such alterations of character depend upon the same derangements and re-arrangements of the mental organization as take place in hysteria. The amnesia is also identical in character and behavior with hysterical amnesia. It presents many types. Sometimes on the part of the secondary hysteric state it is only for educational acquisitions (Case I, B III; Case XII, II and III; Case IX, I); sometimes for the whole previous normal life, either including educational acquirements (Case VIII, II; Case XIV), or inclusive of them (VI, VIII, XI and XV); sometimes only for the restored normal life; sometimes for other hysteric states, etc. On the part of the normal state there is sometimes amnesia for the hysteric states and sometimes not. Experimental investigation shows that such amnesia represents only dissociated memories.

A study, then, of the reported cases of multiple personality brings into strong relief several facts:

(1) The individual physiological and mental alterations observed, including the amnesias, taken by themselves are in no way uncommon as phenomena and, therefore, are not peculiar to this condition, but are frequently observed as elements in other symptom-complexes, particularly hysteria.

(2) That amnesia is not in any way an essential characteristic of secondary personalities, but that some of the most marked alterations of personalities have developed with complete recollections of their previous lives; retention of memory is more likely to be met with when the alterations have gradually developed.

(3) That the symptom-complex observed in certain types of hysteria differs in no way from that manifested by many so-called secondary personalities without amnesia.

(4) That the pure hysterical symptom-complex — the classical hysteric — may form such an organized system that it may be made to alternate in mass with either the healthy psycho-physiological organism or with another abnormal symptom-complex. When this occurs the hysteric may exhibit some form of amnesia. The alternations may be brought about by artificial devices or by accidental factors (emotions, etc.).

The conclusion to which an analysis of the cases brings us is that certain symptom-complexes which commonly pass under the name of hysteria, with or without amnesia, are from another point of view to be regarded as disintegrated or secondary personality, and, if taken in connection with the normal condition, may be regarded as a phase of multiple personality. That is to say, the previous or later acquired normal state may be regarded as one personality, and the disintegrated hysteric as another. As the hysteric ordinarily develops insidiously, and equally gradually returns to health, retaining a continuous memory through the whole cycle, the splitting of the personality and the multiple characteristics are disguised. One condition slides into the other so gradually that in the absence of any loss of memory there is nothing to mark the division of personality. But when, as is sometimes the case, a sudden restoration to health is effected, bringing with it an amnesia on the part of the hysteric or of the restored normal person, the duality of personality becomes plainly recognizable (Cases I, III, IV, V, VI).

Hysteria, then, is a manifestation of disintegration, and the neurasthenic state,[3] one of the stigmata of hysteria, is pathologically a type of dissociation of personality. Conversely, disintegrated personality is no bizarre phenomenon, but in its mild forms an almost every-day clinical affair, though ordinarily, in consequence of the absence of amnesia, it passes unrecognized.

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Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION. ANNUAL MEETING AT ATLANTIC CITY, MAY 12–14, 1906.

The President, Dr. E. L. Shurly, of Detroit, in his opening address, called attention to climatology as a medical art and to the necessity of its continuous study. Dr. Shurly said we were dropping into routines or fads. For example, open air treatment, *anywhere*, for pulmonary diseases of all sorts, or mineral springs *anywhere*, for chronic cardiac and kidney diseases. We do not always consider suitable environment for patients. For instance, a health resort abounding in facilities for gambling and sports may be suitable, psychically, for some patients of the idle, degenerate class, but will such a place be as suitable for physical repair; or, will an isolated ranch in the mountains, with splendid air, dust free and abundant sunshine, suffice if naught but a diet of blue corned beef, measly pork and soggy bread be furnished for the patient's nutrition? The work of the association should not be confined to any one or two diseases but should include clinical, climatic therapy and hygiene of every disease, which may be affected by atmosphere, clouds, temperature, humidity, sun and air effects, chemical and physiologic, as well as the land, the water, the fauna and flora of each district of our country.

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[3] Since this paper was read, Dr. John E. Donley has published a valuable contribution ("Neurasthenia from the Point of View of Dissociated Personality," Jour. of Abnormal Psychology, June, 1906), in which it is shown, arguing along other lines, that neurasthenia is a type of dissociation of personality. As it happens these two papers complement one another and should be read together.

Dr. H. P. Loomis, of New York, made a plea for

THE SYSTEMATIC STUDY OF CLIMATOLOGY IN THE MEDICAL SCHOOLS.

Dr. Loomis showed the disproportion between the time spent in the study of drugs and that given to the important subject of climate, an agent that cures more patients every year than any one remedy. It is a difficult matter to teach climatology. Solly's textbook is the best published in this country but it is more a book for reference. To condense the subject, systematize the knowledge, and make it understandable and practical to the student, necessitates an immense amount of reading of monographs and desultory writings. No teacher can have satisfactory personal knowledge of the great majority of climatic stations. Monographs are commonly biased, and the physician must obtain his most reliable information by the study of his patients, the results in their cases, and what they tell him. The meetings of the American Climatological Association are of great value in this connection.

Dr. Loomis wrote to ten medical schools of prominence, and found that in four climatology was taught, three or four lectures being given yearly; the remainder would consider lectures on climatology advisable. A new work by W. R. Haggard, was favorably mentioned. Dr. Loomis presents the subjects under four heads. First, general considerations, taking up the general effects of the well-known physical conditions upon the climate of any given locality. Second, a practical classification of climate. Third, the peculiarities of the climatic conditions, surroundings and accommodations for patients at the well-known health resorts in the United States. Fourth, climatic treatment of a few prominent diseases affected by climate.

Dr. W. F. R. Phillips, of Washington: Dr. Loomis has given us a scheme that we can follow with profit. That the subject of medical climatology is deserving of attention in medical schools is unquestioned by all that give any attention to the evidences of the strong influence exerted by climate upon organic life. At present, the teaching of climatology to students is purely empirical; what we need, is, instead of clinical observations, physiological observations upon the effects of the climatic elements and factors. If we will but study these more, we will be likely to find out things of importance to us. The medical climatology, notwithstanding all that has been written upon it, is still in its infancy. Intelligent efforts, such as here presented by Dr. Loomis, will stimulate and increase our positive knowledge.

Dr. J. C. Wilson, Philadelphia: This sort of work is of very great importance; the subject as presented would serve as a syllabus for a teacher, and would enable him to make the subject much more clear. Speaking as a teacher of practice, I have a word to say with regard to the place this subject occupies in the curricula. To a certain extent, it must be looked upon as a part of therapeutics. Those who have to do with the arrangement of the curricula are brought face to face with the subjects relating to the advance of the medical student; and the question arises, What time can be given to teaching certain special subjects, and the fitness of the student to understand it? Speaking of the experience of Jefferson College, it will be necessary to recognize a post-graduate year, which will enable the curriculum to be extended in the particular departments, and the subjects can be given to the students who are qualified. I don't see how proper time can be given to this subject in any school, within four years. There is one aspect which has been too little dwelt upon, and that is regarding the individual patient. Very often it is less a question of climate to which he is to be sent, than the climate from which he is to be taken. It is the change of the climate and environment to more favorable conditions in another region that forms an important subject.

Dr. Arnold C. Klebs, of Chicago and St. Moritz, presented a paper on

ST. MORITZ, ENGADINE.

Its high Alpine climate (6,000 feet), modified by the sheltered position on the southern slope of a high mountain range, and its chalybeate and carbonic acid springs give it a unique character. There is no atmosphere of invalidism. While accommodations cost as much as anywhere in Europe, there are more moderate hotels in the immediate neighborhood. The air is bracing, stimulating, vivifying. Dr. Bernhard has a solarium hospital at Samaden, nearby, where he treats surgical tuberculosis by continuous isolation, and orthopedic and surgical measures. Dr. Klebs believes that heliotherapeutic measures are more efficient at the higher altitudes. The carbonic acid baths are extensively used in connection with the Oertel system of graduated outdoor exercises. St. Moritz has an active "Kurverein" which is interested in promoting therapeutic gymnastics and utilizing the natural advantages of the place (terrain). Dr. Klebs considers need of a period for acclimatization, exercise, etc. Only patients in good general condition with sufficient constitutional resources ought to be sent to St. Moritz. Patients with chronic lesions of the circulatory apparatus, sequelæ of inflammatory processes of the heart, trophic cardiac disturbances, and alterations in the composition of the blood and patients with general disturbances of metabolism, especially obesity, or nervous or neurasthenic complaints will find a stay in St. Moritz, with an appropriate *régime*, of lasting benefit. It is a great winter resort, and people are finding out that one has to shiver more frequently in the various places of Italy, the Riviera and Egypt, than in the clear, bracing atmosphere of the high Alps in winter, where warmth is provided during the cold nights, and where the warm sunshine and fascinating winter landscape invite outdoor life and sport.

Dr. Charles E. Nammack, of New York, presented a paper on

THE IRISH RIVIERA.

The trip along the southern and western coasts, lakes and mountains was strongly recommended. The trip is sure to be almost an unmixed joy; two things only, may mar the traveler's happiness,— hotels which leave something to be desired, and rain. The latter though liberal as to quantity, is yet as soft and gentle as the Irish smile, and soon gives away to sunshine, like the country itself, which has been smiling through her tears during seven centuries. Dr. Nammack gave data as to temperature, rainfall, vegetation. Glengariff was recommended for bronchial affections. There are no extremes of heat or cold. The annual rainfall is about fifty inches on some 230 days. Parknasilla is a marine paradise, and Waterville, a great place for anglers. During the last ten years, Ireland has awakened to a realization of the hygienic requirements of visitors to her shores; railway accommodations are improving.

Prof. Carlo Colombo, of Rome, Italy, forwarded a paper on the

ACTION OF THE WATERS OF FINGGI, ITALY.

Read by title.

Dr. W. G. Schauffler, of Lakewood, read a paper on

TEMPERATURE AND SUNSHINE IN LAKEWOOD, N.J., 1900–1905, OCTOBER TO MAY INCLUSIVE.

Dr. Thomas D. Coleman, of Augusta, Ga., read a paper on

WINTER RESORTS IN THE SOUTH.

After reference to Aiken, Asheville, Augusta, Thomasville, Camden, Columbia, El Paso, Jacksonville, St. Augustine, Palm Beach, Miami, Dr. Coleman spoke of the almost inhuman restrictions placed on sufferers from pulmonary tuberculosis. He advised renting inexpensive cottages which may be had for twenty to twenty-five dollars per month, instead of trying to get into high priced hotels. The south has undergone a great change in the last twenty years. The desolation and poverty incident to the Civil War have been overcome, and the South is richer and better equipped in point of comfort than ever before in its history.

DISCUSSION.

Dr. R. G. Curtin, Philadelphia: The suggestion of the doctor that one should secure proper accommodations before starting from home is important. I know that at the present time they are refusing tuberculous patients at many pleasure resorts, formerly health resorts. The last patient I sent to Pinehurst for anemia was told not to get off at that place; that she would find no place to stay, as she had consumption. I sent another to Asheville, and the train porter said he would not be received in any of the hotels, and the patient had to go further south in search of a stopping place.

Dr. Thomas Darlington, Health Commissioner of New York, read a paper on

CEREBROSPINAL MENINGITIS AS OBSERVED IN NEW YORK CITY,

with data from 1866 to 1905 inclusive. In the last year there were 1,511 deaths in a population of 2,390,382 (Manhattan and Bronx), the highest number ever observed in the city, and the severest epidemic. Italians are extremely subject to the disease, and the cases were most numerous in what is known as "Little Italy" on the lower west side. Sporadic periods serve as a link between the epidemic periods, but we do not know the circumstances giving rise to these outbreaks. The epidemic form is almost invariably associated with the meningococcus of Weichselbaum; the sporadic cases are frequently associated with this organism. During the first week of the disease, the meningococcus is present in the nasal mucus in full half the cases; later in the disease the meningococcus is found in a smaller fraction. It also occurs in the nasal mucus of some persons who are in close contact with cases of cerebrospinal meningitis. This was found to be the case in 10% of those examined. Exposure to sunlight makes infection by dust improbable. The organism is communicable, but its transmission is not equivalent to transmission of the disease. In some epidemics, infants are mostly affected; in others, older children; sometimes chiefly adults. Probably the disease in lower animals seems to have no connection with the disease in man. It is probably not carried by vermin or insects. The period of incubation is one to four days. There is no evidence of the occurrence of a dwelling infection. Dr. Darlington thinks it best to isolate most cases of cerebrospinal meningitis occurring in the crowded tenement districts.

Dr. J. C. Wilson, Philadelphia: In the Pennsylvania Hospital, cases of cerebrospinal meningitis were admitted to the general wards, as many as four or five at one time, and no case arose from having it there.

DISCUSSION.

Dr. I. H. Hance, Lakewood: As the result of the condition of affairs which exists in Lakewood, I would like to ask the speaker the following question: A mother has cerebrospinal meningitis; every known sanitary precaution is being taken; the children of this family are allowed to go to school. Is it wise? And how would he answer the objections of the other mothers in the village as to whether these children are likely to carry the infection?

Dr. R. G. Curtin, Philadelphia: When I was Resident House Physician at Blockley in 1866, we had 280 cases in the hospital. They were taken in the general wards, and no patient, nurse or doctor contracted the disease.

Dr. Beverley Robinson, of New York, read a paper on

SOME FORMS OF ACUTE CARDIAC DILATATION.

Reference was first made to cardiac dilatation which shows itself during the march of some acute infectious disease, such as rheumatism, pneumonia, diphtheria or influenza; afterward to acute cardiac dilatation of nervous origin due primarily many times to the wear and tear of an anxious and working life, the strain falling chiefly on the brain and nervous system; then to the rapid or sudden form, coming on in those whose excesses in eating, drinking or tobacco, render them unable to bear even temporary physical strain. Acute rheumatic endocarditis in children results fatally, not by reason of the endocarditis, but because of the cardiac dilatation which follows it, due to a toxic action on the cardiac muscle. In many cases of rheumatism, acute dilatation of the heart is far more important in its immediate and remote results than any pericardial rub or endocardial murmur. Dilatation of the heart in pneumonia is the subject of greatest, almost immediate anxiety. Dr. Robinson uses in these cases nitroglycerin every fifteen minutes or every half hour; the use of preliminary blood-letting, leeches or wet cups locally. He holds that local blood-letting of equal amount is effective and relieves distress and oppression. Digitalis may be used when the heart, as a whole, is affected and weakened by the toxemia of pneumonia. Dr. Robinson spoke of the untold harm done by the foolish and pernicious use of the coal-tar products, during the illness, and in persons past middle life, sudden exertions and overeating. Acute dilatation due to the use of tobacco is a frequent cause of heart flutterings, throbbings, irregular pulsations, etc. Dr. Robinson urged taking work reasonably and quietly; more time to eat and sleep; readiness to take needed rest when weary; more satisfaction in slower and surer gains, and the abandonment of the attempt to attain the impossible.

DISCUSSION.

Dr. R. H. Babcock, Chicago: I would like to refer to these large doses of salicylate of sodium in acute rheumatism. From our modern conception of the etiology of this disease, these large doses are not indicated. I cannot persuade myself that salicylate is of service after the pain is allayed. In my hospital service I never continue it after the pain has disappeared. I use alkalies in conjunction with the salicylates. Where the alkali is combined with the salicylate, we allay the pain more quickly and can get along with smaller doses of salicylate. I have seen some objectionable symptoms produced. With reference to the dilating ability of the heart one cannot fail to be impressed with the early appearance of cardiac dilatation in acute rheumatism, and I have believed for a considerable time that cases which were formerly reported as cured cases were mere cases of dilatation; then as the disease passes and the heart comes down and the murmur disappears, it has been put down as an endocardial murmur. That is wrong. I am always impressed with cardiac diliatation in children with rheumatism, and in many a case of dilated left heart with mitral regurgitation the leak can be reduced by treatment calculated to reduce the dilatation. I treated a boy who had an attack of rheumatic endocarditis. The first sound was completely obliterated by the murmur. Nauheim baths were given and the left ventricle was reduced and the first tone at the apex returned. The freedom of his leak was not so much due to the injury of the valves as to the dilatation which had persisted.

Dr. J. H. Pratt, Boston: We have used the orthodiagraph for two years at the Massachusetts General Hospital. It was invented by Moritz of Munich. The instrument is simple in construction, but expensive, — costing about $200. It is an aid in acquiring skill in cardiac percussion. The area of absolute cardiac dullness is usually a more trustworthy index of the size of the heart than the area of relative cardiac dullness.

Dr. Judson Daland said it was difficult to distinguish between right and left ventricular dilatation. Most physicians are inclined to ascribe the small feeble pulse in right ventricular dilatation to weakness of the left heart and, in cases of pneumonia, they maintain that we have the feeble pulse and that it is unwise to attempt venesection. Dr. Daland believes that venesection is wrongly withheld on that account; he has noticed the force and value of the radial pulse increase during venesection; it is practised too little. It is superior to wet cups or leeches. After venesection, Dr. Daland gives alkaline water freely to diminish the coagulability of the blood.

Dr. J. M. Taylor, Philadelphia: I am surprised that Dr. Babcock speaks so temperately of the salicylates. I have been led to fear the salicylates and more and more the continued use of them. Personally, I find that benzoate of soda is much more satisfactory. By maintaining the alkalinity of the blood we insure oxygenation and relieve the heart muscle of toxins. I have been using internally the ordinary normal salt solution as a drink to supply the loss of plasmatic salines which occurs in pneumonia and other febrile conditions. This supply is necessary for the maintenance of the oxygenating power and the alkalinity of the blood. It is valuable as a practical measure, and it is easily administered. The children do not object to it, and are thereby kept up to their normal supply of sodium chloride.

Dr. B. Robinson, New York, closing: I suppose that we, the older men, have disadvantages and advantages. Our disadvantages consist in not having all the enthusiasm and convictions of youth. We have lived a long while and heard a good many things talked about. We cannot always carry our points. I have for a long time believed that we did not counterirritate over the heart as we should. On the other hand, it doesn't do any good if it is done in a non-intelligent way. If we repeat fly blisters over the heart and carry them to redness and some slight blistering, they are useful. I believe Lees is correct in his theories which I have referred to.

Dr. William M. Gibson, of Utica, read a paper on

THE TACHYCARDIA OF EARLY PULMONARY TUBERCULOSIS.

In addition to the increased frequency of pulse rate, we find the heart muscle laboring under undue stimulation, and although the cardiac rhythm is seldom disturbed, or the area increased, the impulse is abnormally forcible and the sounds much intensified, especially in young subjects. In many cases tachycardia cannot be due to fever; the toxins formed in the tuberculous growth are known to have a powerful action on the heart muscle and on the nerve centers governing the vascular mechanism. Stress is laid on the effects on the cardiac and respiratory ganglia by disturbances of respiration. Tachycardia demands rest more urgently than fever or dyspnea. Rest in bed in a well-aired room, proper attention paid to nutrition and excretion and the presence of a competent attendant are advised. In persistent tachycardia nuxvomica with full doses of hypophosphites steadies the circulation and improves nutrition. Opium in the form of the old-fashioned Heims-Niemeyer pill gives relief and comfort in many of the rapidly fatal acute infections; it should be reserved for desperate cases.

Dr. E. R. Baldwin, Saranac Lake: In regard to toxic action, it is well known that the essential poison of the tubercle bacilli has a special affinity for the blood vessels or their controlling mechanism. The fact that tachycardia occurs often in cases where there are very few physical signs has long been regarded as an evidence of miliary tuberculosis. The destruction of the tubercle bacilli in the blood may be the real cause of the tachycardia. I am speaking of it from a narrow laboratory standpoint. From recent studies it appears that the destruction of the bacilli is produced by an enzyme action and, the essential poison of the bacilli being set free, has some unknown affinity to the vessel walls and nervous tissues, probably the sympathetic system. The subject at present is of great interest in connection with immunity studies.

Dr. J. H. Pryor, Buffalo: The occurrence of tachycardia in advanced cases of tuberculosis when toxemia is present is one thing and its appearance in early cases is another. Are we not attributing too much importance, to tachycardia as an early sign of tuberculosis? Other causes must be eliminated first. We must distinguish between a rapid pulse and true tachycardia. We should be careful to eliminate the possibility of some manifestation of neurasthenia from gastro-intestinal disturbances.

Dr. R. H. Babcock, Chicago: I question whether the tachycardia could not be secondary to low pressure present in these cases. Could not these toxins act primarily on the blood pressure?

Dr. W. M. Gibson, Utica: I stated in my paper that the cause of this form of tachycardia is complex and that tuberculin lowers blood pressure by dilation of the blood pressure. There have been two urinary findings that have always been marked, and that is the absence of chlorides in pneumonia and the phosphaturia of tuberculosis. Phosphaturia is a common occurrence in the early stages of tuberculosis.

Dr. Glentworth R. Butler, of Brooklyn, read a paper on

HEART BLOCK,

reporting a case and giving the results of the autopsy. The case was that of a man forty-three years old, of extremely temperate and regular life. He had a slow pulse following pneumonia two years previously. Its rate during the pneumonia was never over 42 per minute. His last illness was of ten days' duration and was ushered in by moderate fever and pains in the larger joints. He had three brief epileptiform convulsions on successive days and the pulse sank to 28 and later to 14 to 20. It then dropped to 6 beats or less during the last day when the convulsions were frequent, nearly twenty seconds elapsing between beats on one occasion. The auricular pulsations varied from 80 to 130. The autopsy showed fatty infiltration and degeneration in the walls of the right ventricle and, to a less extent, in the left ventricle. There was an acute exudative nephritis. Sections of the bundle of His, compared with similar sections from a normal heart, showed fatty infiltration and atrophy to one fifth normal size, thus confirming the later theories in regard to the nature and causation of Stokes-Adams disease.

Dr. Philip King Brown, of San Francisco, had expected to be present and read a paper on

ARTIFICIAL NAUHEIM BATHS IN CHRONIC HEART DISEASE.

Although he lost his house and library in the fire he rescued a few personal belongings and among them the paper which he had prepared and some valuable charts of his heart cases which he forwarded. Twelve cases with charts formed the basis of the paper. Greater stress is laid on the effects of the baths than on the resisted movements; the latter are not held to be so lasting in their effects as the bath. They are best given an hour or two before the bath. Massage was advised.

SYMPOSIUM ON CLIMATOLOGY AND BALNEOLOGY IN RELATION TO RENAL DISEASE.

Dr. Henry Sewall, of Denver, read a paper on the

INFLUENCE OF BAROMETRIC PRESSURE ON NEPHRITIS.

Dr. Sewall said that there is positive evidence that albumin or albumin and casts may diminish or disappear from the urine of a person as a result of descent from a high to a low altitude and that, at the same time, the attendant subjective symptoms may be ameliorated. Two cases were cited to illustrate this.

On the other hand probably every practitioner of large experience has evidence that cases of acute nephritis subside apparently as readily there as, judged by the literature, they might be expected to do at sea level, and that cases presenting the characters of chronic nephritis may apparently recover or continue to live in comfort for years. In changing from a lower to a higher altitude there is produced a modification in the distribution of the blood mass. As a somewhat similar change in circulation probably characterizes the dyscrasia giving rise to products which irritate the kidney, it is reasonable to suppose, though it does not follow as a logical sequence, that such a change of circulation may set up the morbid metabolism which brings disaster on the weakened kidney. A drop from a high to a low altitude may temporarily produce as marked a disturbance of physiological functions as the reverse.

Dr. Charles C. Ransom, of New York, read a paper on

BALNEOLOGY IN RELATION TO RENAL DISEASE.

Dr. Ransom considered the use of water at home and at spas and its use internally as well as externally. The views of Senator, Osler, Delafield, Crofton and von Noorden in reference to the internal use of water in acute nephritis were quoted and discrepancies were evident. The preponderance of evidence was that the scanty secretion of urine is caused by the congested condition of the kidneys and that their functional activity will be restored and symptoms disappear as soon as congestion shall have subsided. Water may be a direct irritant to the kidneys in acute Bright's disease by increasing congestion; it is extremely doubtful that the solid matters may be carried off through the kidneys in these congested conditions even when diuresis is induced by the stimulating effect of water, and there may always be danger of burdening an already overtaxed cardiovascular system. Therefore a routine treatment of excessive water drinking should be discarded in acute forms of Bright's but may be employed in the later stages. The hydrotherapy of acute nephritis is followed by good results. Dr. Ransom advocates baths at 98° to 105° F. for fifteen or twenty minutes; the hot air bath, electric light bath. It favors withdrawal of water from the blood and tissues; the view that it facilitates the excretion of retained toxic materials is probably incorrect.

Dr. Philip Marvel, of Atlantic City, read a paper on the

USE OF WATER AND HEAT IN THE TREATMENT OF RENAL DISEASE.

Dr. Marvel said that hydrothermic therapy with relation to its accelerating and inhibiting action upon the cardiovascular forces and the nervous mechanism of the body may be stated to be a tonic, strengthening the heart, prolonging its diastolic pause and increasing the period of nutritive rest without toxic cumulative effect. In acute cases, if the temperature be high, urinary secretion be not abnormally lessened, the intermediate or neutral bath at 94° to 98° F., with passive motion for six to eight minutes, may be used with benefit, the patient then to be wrapped in a blanket and allowed to remain quiet for eight, ten, twenty or thirty minutes, as may be required; after which the limbs may be dried without exposure, followed by light friction or massage. The treatment of chronic cases requires greater variance in temperature and mechanical manipulation.

(To be continued).

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Book Reviews.

The Diseases of the Nose and its Accessory Sinuses. By H. Lambert Lack, M.D. (Lond.), F.R.C.S., Surgeon to the Throat Department of the London Hospital, etc., with 124 illustrations. London, New York and Bombay: Longmans, Green, & Co. 1906.

This is a book of four hundred pages intended for those practitioners and senior students who intend to devote special study to the subject. It contains a brief review of the anatomy and physiology of the region, and a description, more or less in detail, of the etiology, pathology, diagnosis and treatment of the different abnormal conditions. The subjects in which there is little difference of opinion are concisely treated, while in others the author discusses various opinions and practice with frequent references to other authorities. These references are well selected and are a great addition to the value of the book as a manual for students, or as a book of reference. The author's previous work and his position in the profession make his opinions valuable, and his conclusions are in all cases in accord with recent progress, although not always with those of the majority. He considers, for instance, that the difficulty of doing the submucous operation of the septum and the time required outweigh its advantages. It is interesting to find the etiology of Bosworth for ozena and of Woakes for nasal polypus given precedence of the numerous theories which have arisen in more recent years. The chapter on nasal polypus alone would make the book valuable. The author's view of the nature of polypi and his method of treatment are important. The relation of asthma to nasal conditions is well discussed, although in the kindred subject of hay fever the American reader will miss those types which are peculiar to this country. As is to be expected from the recent great interest in the subject, the accessory sinuses receive special attention. These chapters are well written, judicial and in accordance with the most recent opinions.

Although the arrangement of subjects is sometimes a little confusing and a few of them, such as the deformities and injuries of the external nose, receive scant attention, the book as a whole is well balanced, interesting, modern and, all things considered, is the best English manual for the diseases of the nose which has recently appeared.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. I. Aachen to Brain. Edinburgh and London: William Green & Sons. 1906.

The first volume of this prospective work goes through A and part of B. This volume represents the work of many authors standing high in professional esteem. Dr. J. W. Ballantyne, in the introduction, makes the statement that the attempt in this new work is to combine the advantages of an encyclopedia of medicine with those of a medical dictionary. To this end many subjects are treated at considerable length, whereas others are alluded to in scarcely more detail than would be the case in a so-called dictionary. From time to time, undoubtedly, such works as this are useful. We have recently in this country seen an admirable new edition of Buck's Reference Handbook of the Medical Sciences to which this English work in great measure corresponds. The volume before us is illustrated but not profusely. The text is arranged in two columns; the type is excellent and clearly printed; and so far as one may judge from the first volume the series, when completed, will be an adequate epitome of the present status of the medical sciences. We trust succeeding volumes will follow the first at no distant date in order that the entire series may clearly represent a definite period in the progress of medicine.

A Manual and Atlas of Dissection. By Simon Menno Yutzy, M.D., Instructor in Osteology and Demonstrator of Anatomy in the University of Michigan. With an introduction by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy, University of Michigan, Ann Arbor. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906

This volume does not lend itself to detailed review. As its title implies, it is an outline for the student in his work in dissection. The figures are in great measure taken from Morris and Holden's Anatomy, and the descriptive text surrounding them is brief and directed to pointing out to the student objects to be found. Colors are used in the plates, which are admirably executed, and in general the book should excellently serve the object for which it is designed.

Unconscious Therapeutics; or the Personality of the Physician. By Alfred T. Schofield, M.D., M.R.C.S. 8vo. Pages, xiv, 317. Second edition. Philadelphia: P. Blakiston's Son & Co. 1906.

Although the preface assures us that "important additions have been made to the text" of this new edition, they are really few in number, and consist only of a few sentences which do not have any material bearing upon the doctrines expounded in the first edition. In the main the book is unchanged.

The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery, under the general editorial charge of Gustavus P. Head, M.D. Volume IV, *Gynecology.* Edited by Emilius C. Dudley, A.M., M.D., and C. von Bachelle, M.S., M.D. Series 1906. Chicago: The Year Book Publishers.

This little book of 227 pages, like its predecessors, is intended for the general practitioner. By its use he is to keep abreast of the progress in gynecological literature. In the present volume are to be found well illustrated articles on E. C. Dudley's method of suturing and dressing abdominal wounds, on his operation for advancing the urethra in incontinence of urine, the technique of plastic operations on the vulva, and his methods of shortening the round and uterosacral ligaments; also Vineberg's operation for absence of the lower third of the vagina and Barrett's treatment of anteflexion. The range of subjects covered is large and comparatively little poor material is included.

Volume V. *Obstetrics.* Edited by Joseph B. De Lee, A.M., M.D., with the collaboration of D. Roehler, M.D., and Herbert M. Stowe, M.D. Series 1906.

This is an admirable book. The abstracts from the literature are chosen with great obstetrical discrimination and acumen. A special feature are the numerous and full editorial comments, the editor, Professor of Obstetrics in the Northwestern University Medical School, making his own experience a part of the book. Practical suggestions abound.

Both of these volumes in the Practical Medicine Series are well printed and illustrated but indifferently bound.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, OCTOBER 11, 1906.

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THE MODERATOR BAND IN THE HEART.

A not infrequent autopsy finding is a thin, rounded, grayish band or tendon running across the cardiac ventricle from one side to the other. Sometimes more than one such is seen. They are usually found in the left ventricle and run from the upper portion of the septum to the region of the base of one or the other of the papillary muscles. These bands are commonly regarded as some sort of congenital anomaly, the presence of which is of no practical importance except in rare cases, when some musical murmur observed during life receives an explanation from their existence.

To the man familiar with the structure of the heart of the lower mammals, they are recognized as identical with bands commonly found in the heart of the sheep, calf and dog. Interest in them has previously ended here, and a knowledge of their structure has been wanting.

The clinical and physiological studies of heart block has reawakened interest in cardiac anatomy, and these structures have been studied by Tawara [1] working in the laboratory of Professor Aschoff. He notes that in most of the described cases the abnormal tendon or moderator band has the same general course as the conducting fibers previously described by him, that is, they begin on the interventricular septum a little below the pars membranacea and run to the wall of the ventricle lower down, usually in the region of the base of one of the papillary muscles. Histological examination shows them to be not tendons, but to contain muscle fibers of the microscopic structure of the fibers of the conducting system. In other words, he regards them as part of the conducting system of the heart, which, instead of taking their usual subendocardial position, have plunged boldly across the cavity of the ventricle, following a course quite common in some lower mammals.

With this interpretation of the nature of the moderator bands they become of significance, for in this unprotected position the conducting fibers are presumably more subject to inflammatory injury than when running in the wall of the ventricle. Moreover, in those cases where they extend from one side of the ventricle to the other, cardiac dilatation might cause their rupture. Such lesions would lead to an interference with the conduction of contraction stimuli and affect cardiac function. At least, attention must be focused on the moderator bands until fuller knowledge of the clinical results of lesions of the auriculo-ventricular conduction paths in general is attained before we shall be in a position to correctly estimate their importance.

Whether the presence of moderator bands can be diagnosed during life by auscultatory sounds is an open question. Cases have been reported with musical murmurs which were attributed to these bands, but the evidence is not thoroughly satisfactory. Tawara believes the moderator bands do not produce murmurs, since they are relaxed at the time of ventricular systole, the time generally assigned to these murmurs.

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SYMPATHETIC OPHTHALMIA.

For many years sympathetic ophthalmia has been the bugbear and one of the greatest problems of ophthalmology. The disease most often follows a perforating injury of the eyeball and develops as a plastic inflammation of the vascular tunic of the eyeball (uveitis), the iris, ciliary body and choroid. In a varying period of time, infection of the other globe takes place, and in the past the process has often terminated in total blindness. Though the clinical picture is well recognized and modern treatment, or rather prophylaxis, has done much to lessen the frequency of the disease yet the nature of the infecting agent and the mode of transmission have remained unsolved. During the past year two researches in this field, of more than ordinary interest, have appeared, and indeed the second of these gives promise of being a notable advance.

In the first article referred to Professor Fuchs [1] presents one of the admirable studies for which he is so justly noted. It has been known for many years that the histologic changes of sympathetic ophthalmia are characteristic. Fuchs reports that he has been able to make the diagnosis with the microscope alone in 181 cases. He presents a very complete pathological description of the disease and gives new and important data as to the locality of the lesions and as to the frequency of their occurrence.

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[1] Ziegler's Beiträge, 1906, xxxix, 563.

[1] Archiv für Ophthalmologie, Bd. lxi, Heft 2.

The second study comes from zur Nedden[2] of Bonn, and is along experimental lines. A few years ago Schirmer succeeded in two instances in producing a process in rabbits' eyes similar to sympathetic ophthalmia by inoculating pieces of the ciliary body from eyes removed for this disease. Zur Nedden has accomplished this and advanced much further. By transferring blood from two cases of sympathetic ophthalmia to the vitreous of rabbits he has produced this disease. He has inoculated a second series of rabbits with vitreous from the first and again produced the process. From the second rabbit's vitreous he has obtained a bacillus which will cause a plastic uveitis when injected into the vitreous, the carotid or the venous system. By treating his second case with serum obtained from the first he was able to effect a rapid cure.

Zur Nedden himself is exceedingly cautious in drawing conclusions from two cases and expressly states that his results can only be regarded as suggestive until confirmed by a large number of observations.

Many ophthalmologists will recall the enthusiasm with which Deutschmann's experiments, apparently proving that infection of the second eye was due to the migration of bacteria along the optic nerve sheath, were received twenty-five years ago. The problem was regarded as solved. But later investigators failed to confirm his results and ophthalmology learned a lesson in conservatism. Thus zur Nedden's work will be accepted as he offers it, not as a final solution of the question but as pointing out the most promising direction for future investigations. He himself is Sæmisch's assistant and is regarded as one of the most productive of the younger German school.

A HEALTH RESORT ON LAKE MAGGIORE.

On another page of this issue of the Journal is an interesting and entertaining letter from our Paris correspondent, giving some account of a health resort on Lake Maggiore with some novel and many attractive features, and presenting physiological reflections suggested thereby. The dietetic value of nuts has its advocates in this country and elsewhere; Mr. Fletcher has impressed upon us the profit in much mastication; Professor Chittenden has preached to us the usefulness of moderation in food; the pseudo-vegetarian we have always about us; and there was a sect in Kansas, we believe, who endeavored to demonstrate the stimulating effect of nudity to the organism — but its members found their way to the local jails.

Monte Verità, the Maggiore resort, has managed to combine all these aids to health, and to bring them together amid the most delightful surroundings. The sun baths, however, are enjoyed discreetly, and the vegetarianism is genuine. Our correspondent yielded to the charm of the spot, and resolved that, when his nerves had gone the way of all modern nerves, this was the place for him, and the lizard should be his teacher.

We sympathize with him, and will, probably, even more strongly later in the year. But we also sympathize a little with the rich man in the parable who would enter the kingdom of heaven. We happen to have before us the weights before and after dinner of a dozen prominent medical men who partook together, recently, at the house of one of their number, of a meal described as good but not sumptuous. The weights before dinner ranged from a minimum of 132 pounds to a maximum of 252.75 pounds; and after dinner from a minimum of 134.5 pounds to a maximum of 257.5. No one had gained less than 2.25 pounds, and the greatest gain was 4.75 pounds. The average gain in weight was about three pounds. Those who weighed most before dinner gained most. We fear it would be somewhat like the camel's attempt to pass through the eye of the needle for these gentlemen to try to adapt themselves to the Monte Verità regimen of a few nuts and a little lettuce. They would doubtless be found in the company of the carnal lady who frequented the neighboring village in search of a little milk, even did they forsake all and follow the ascetic Belgian. The men might survive, which would be worth while if one could be sure of the good talk and the cheeriness also. Perhaps the sunshine would suffice to encourage these.

But in all seriousness we must admit that other people eat and drink too much!

ETHER DAY.

On Tuesday, Oct. 16, there will be a small gathering in the old amphitheater at the Massachusetts General Hospital at 12 o'clock. At which time will be given some account of the events of Oct. 16, 1846, and it is hoped that one of the original witnesses of the first operation under ether at the hospital will be present.

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[2] Archiv fur Ophthalmologie, Bd, lxii, Heft 2.

The object of this annual gathering is to keep alive the memory of what may be considered America's greatest contribution to medicine, and it is hoped by the hospital authorities that its example may be imitated by other hospitals in this country.

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MEDICAL NOTES.

The Herter Lectures. — The third course of lectures on the Herter foundation was delivered by Sir Almroth E. Wright, M.D., F.R.S., late professor of pathology, Army Medical School, Netley, pathologist to St. Mary's Hospital, London, on Monday, Tuesday and Wednesday, October 8, 9, and 10, 1906, at 4.30 p.m., in the auditorium of the Physiological Building, Johns Hopkins Medical School. The lectures were on the therapeutic inoculation of bacterial vaccines and its application in connection with the treatment of bacterial disease.

The Honorary Degrees Conferred by Harvard University, Sept. 26, 1906. — It may be worth while to note, in regard to the ten honorary degrees conferred by Harvard University at the academic session of its dedication of its new Medical School buildings, that five of the recipients were citizens of the United States, two were Englishmen, one a Canadian, one a German and one a Mexican. One degree was given to anatomy, two to physiology, two to pathology and bacteriology, two to surgery, two to internal medicine and one to architecture. It is well understood that degrees are not given *in absentia*, and the recipients were all present at Cambridge.

The Harvey Society Lecture Course. — The Harvey Society of New York announces its second course of lectures. These are given at the Academy of Medicine Building, 17 West Forty-third Street, on Saturday evenings at 8.30 p.m. The lectures are open to the public, and all interested are cordially invited to attend. The program for the year is as follows: Oct. 20, Prof. A. E. Wright, London, " Therapeutic Inoculation with Bacterial Vaccines "; Nov. 3, Prof. C. A. Herter, New York, " The Common Bacterial Infections of the Digestive Tract and the Intoxications Arising from Them "; Nov. 17, Prof. W. T. Porter, Boston, " Vasomotor Reflexes "; Dec. 1, Prof. J. G. Adami, Montreal, " The Myelins and Potential Fluid Crystals of the Body "; Dec. 15, Dr. S. J. Meltzer, New York, " The Factors of Safety in Animal Structure and Animal Economy "; Jan. 12, Prof. F. G. Benedict, Middletown, Conn., " Metabolism during Fasting "; Jan. 26, Prof. E. B. Wilson, New York, " Recent Studies of Heredity "; Feb. 9, Prof. G. S. Huntington, New York, " The Genetic Interpretation of Variations in the Genito-Urinary Tract "; Feb. 23, Prof. W. T. Councilman, Boston, " The Relation of Certain Leucocytes to Infectious Diseases "; March 9, Prof. Friedrich Müller, Munich, " Neuroses ofthe Heart."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Oct. 10, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 38, scarlatina 22, typhoid fever 50, measles 1, tuberculosis 38, smallpox 0.

The death-rate of the reported deaths for the week ending Oct. 10, 1906, was 18.79.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Oct. 6, 1906, is 227, against 196 the corresponding week last year, showing an increase of 31 deaths, and making the death-rate for the week 19.66. Of this number 131 were males and 96 were females; 223 were white and 4 colored; 148 were born in the United States, 77 in foreign countries and 2 unknown; 52 were of American parentage, 152 of foreign parentage and 23 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 33 cases and 2 deaths; scarlatina, 18 cases and 0 deaths; typhoid fever, 47 cases and 4 deaths; measles, 1 case and 0 deaths; tuberculosis, 55 cases and 25 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 21, whooping cough 2, heart disease 19, bronchitis 7 and marasmus 7. There were 3 deaths from violent causes. The number of children who died under one year was 52; the number under five years 70. The number of persons who died over sixty years of age was 55. The deaths in public institutions were 54.

There were 3 deaths and 1 case from cerebrospinal meningitis reported during the week.

Typhoid Fever at Natick, Mass. — Typhoid fever has broken out in epidemic form in Natick, with a record on Oct. 9 of thirty-four cases. The disease shows no sign of abatement, nor has its source been discovered. The State Board of Health has been called in to assist the local Board of Health in tracing the sources of the disease.

Typhoid Fever in Maine. — Many cases of typhoid fever have occurred in towns north of Bangor, Me., many of which are situated on the Penobscot River, emptying their sewage into that stream. At Oldtown, according to a recent report, there were fifteen cases. Warnings have been issued against the use of Penobscot River water unless boiled or distilled.

The Pollution of Boston Harbor. — The Report of the Massachusetts State Board of Health for 1905, just issued, contains an article which receives much attention in the daily press, on the pollution of Boston Harbor. This condition is not a revelation, but the warning of the board against the use of contaminated shellfish is timely and should be acted on by the proper authorities in so far as it may be possible for them to take action. We shall refer to this report again, but reproduce now the following: " The results of the investigation have shown that the waters in all parts of the harbor are affected in a greater or less degree by pollution from the sewers and other wastes from the great population about it; and there can be no question of the serious danger to health involved in the use of shellfish from any point within the harbor or in the neighborhood of the islands at its mouth, if these shellfish are used for food without thorough cooking."

NEW YORK.

A Gift to Columbia University. — Among the gifts to Columbia University which were announced at the last meeting of the trustees of the university, was one of $500, from an anonymous donor, for the department of clinical pathology.

A Prolific Woman. — Mrs. Emma Chatlos, a native of Hungary, who died recently at Tuckahoe, Westchester County, at the age of forty-four years, had been the mother of no less than nineteen children, of whom ten are now living.

Bequests. — By the will of the late Adolph Herrmann of New York, $5,000 is bequeathed to Mount Sinai Hospital, $2,500 to the Montefiore Home and Hospital for Chronic Invalids, and $500 to the Mount Sinai Training School for Nurses.

Solitary Confinement of Homicidal Maniacs. — In consequence of his investigation of the murder of one of the attendants at the State Hospital for Insane Criminals at Matteawan by Mrs. Elizabeth Halliday, a patient, Coroner Goring of Dutchess County has made an appeal to the State Commission in Lunacy to make such a modification of the rules governing the care of the insane under their jurisdiction as to permit the solitary confinement of homicidal maniacs. Previous to her commitment to the Matteawan hospital, the Halliday woman had perpetrated four other murders.

Death-Rate in September. — The weekly reports of the Health Department show that during the month of September the mortality in the city represented an annual death-rate of 17.67, as against 18.81 in August and 16.29 in September, 1905. The corrected death-rate, excluding non-residents and infants under one week old, was 16.67. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles decreased from 5 in August to 3 in September; the weekly average from whooping-cough, from 13 to 8; from pulmonary tuberculosis, from 162 to 155.75; from diarrheal diseases, from 346 to 251.5; from diarrheals under 5 years of age, from 319.75 to 239.75; and from cancer, from 59 to 56.25. Among the diseases which showed an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 17 to 19.75; from diphtheria and croup, from 12 to 15.75; from pneumonia, from 40.75 to 53; from broncho-pneumonia, from 54 to 65.75; from apoplexy, and congestion and softening of the brain, from 41 to 45; from cirrhosis of the liver, from 21.75 to 22.25; and from organic heart diseases from 84.75 to 98.5. The slightly increased death-rate, as compared with that of September, 1905, is largely due to the greater mortality from diarrheal diseases in children under five, and the cause of this is, no doubt, the much higher temperature and greater humidity of this year. In September, 1905, the weekly average of deaths in this class was 172.25, as against 239.75 the present season.

Decision of Medical Interest. — A decision of some medical interest has just been rendered by County Judge Frederick E. Crane, acting as surrogate in Brooklyn, in a contest over the will of the late Dr. Frank J. Freel, who was unmarried. By the terms of the will of Dr. Freel's father, who left an estate of over $1,000,000, the widow was to have the use of the estate for life, and at her death it was to go to Dr. Freel and an only sister, or their heirs, share and share alike. It appears that Dr. Freel, who was an inebriate, had quarrelled with his relatives and he left his entire inheritance to a man whom he met when he was a hospital interne and who had been his valet ever since he left the hospital. The validity of the will was contested by the mother and sister. Judge Crane, in his opinion, which sustains the will, states that while Dr. Freel died from typhoid fever, it appeared that alcoholism was an indirect cause of death, and goes on to say: " There seems no reason to doubt that at times the deceased was crazed from drink, and absolutely irrational. If the will were made while the doctor was in, or recovering from, one of these deliriums, of course it could not stand. But I think it appears very clearly that at certain times the testator recovered his self-possession; particularly so a few months prior to his last illness. I must consider that a drinker, even one subject to delirium tremens, is not incapable of making a will, provided that he be sober and rational at the time it is executed."

A Tribute to Dr. Leroy M. Yale. — One of the officials of the New York Public Library has written an appreciative notice of the artistic career of the late Dr. Leroy M. Yale. After referring to Dr. Yale's unusual knowledge of the technical processes of the art of etching, and stating that he took an active part in the establishment of the New York Etching Club, he remarks: He, James D. Smillie and the late R. Swain Gifford naturally come to mind together, and these three in fact were associated in the production of the little plate etched at the first meeting of the New York Etching Club, in 1877, Yale working the press. The original copper plate of this etching is in the print room of the New York Public Library, which institution possesses also a number of etchings by Dr. Yale, selected by himself and representing his best work. Dr. Yale took an active interest in the growth of the Library's collection of American etchings, gave a manuscript catalogue of his work, as well as one or two original coppers and a number of etching tools, and urged others to follow his example. In recent years he found much pleasure in making pastel studies of landscape, but as an artist he will remain best known by his etching work. His is an influential figure in the history of painter-etching in this country.

Obituary.

WALTER BURLINGAME ODIORNE, M.D.

At a meeting of the staff of visiting surgeons of the Massachusetts General Hospital, held on Sept. 24, 1906, the death of Dr. Walter Burlingame Odiorne, surgeon to out-patients, was announced, and the following resolutions were adopted:

" *Resolved*, That by the death of Dr. Odiorne the hospital has lost a faithful, accomplished, efficient and beloved officer.

" *Resolved*, That though but two years in the hospital service, he had impressed deeply his associates by the elevation of his character, the excellence of his attainments, the modesty of his bearing, the purity of his aims, and his rare devotion to duty. Unmoved in the face of mortal disease, he displayed a perfect courage. A patient scientist, a humane physician, a high-hearted gentleman, he had kept himself unspotted from the world.

" *Voted*, That this appreciation by the Visiting Staff be spread upon the records, and that these resolutions be transmitted to Dr. Odiorne's family and be published in the Boston Medical and Surgical Journal."

Current Literature.

Medical Record.
Sept. 29, 1906.

1. Koplik, H.: *Percussion of the Skull as a Means of Placing the Indication for the Performance of Lumbar Puncture.*
2. Graves, W. W.: *The Problem of Localization in Relation to Head Injuries.*
3. Moschcowitz, A. V.: *The Surgical Treatment of Trigeminal Neuralgia.*
4. Stowell, W. L.: *One Hundred and Three Cases of Epilepsy.*
5. Thrush, M. C.: *A Plea for a More Thorough Course in Practical Pharmacy in Our Medical Schools.*
6. Disen, C. F.: *Some Points on the Diagnosis and Treatment of the Pretuberculous State.*
7. Lopez, J. H.: *Examination of the Feces of Twenty-five Starch-fed Infants, with a Few Clinical Observations.*
8. McCrury, F. R.: *Suppurating Omental Hernia: Report of a Case.*

1. Koplik mentions the relief obtained from lumbar puncture in cases of cerebrospinal meningitis with symptoms due to increased intracranial pressure. In meningitis the first result of intracranial pressure is the distention of the ventricles of the brain with fluid; detection of this fluid is the indication for lumbar puncture. This acute hydrocephalus is to be detected by percussion of the skull, as described by McEwen. When it is present the percussion note at a given spot on the cranium, such as the pterion, varies according to the position of the head. While the person sits with the head upright the most resonant note is brought out by percussion toward the basal level of the frontal bone; as the head is inclined to one side percussion over a cranial bone of the side held downward gives a tympanitic note, described as giving "an idea of hollowness." This is our only method of determining whether an increase of fluid in the ventricles is present. If the tympanitic note persists after puncture, and there is a deepening of symptoms, the puncture should be repeated in twenty-four or forty-eight hours.

3. Moschcowitz calls attention to the existing uncertainty as to etiology, pathology or site of origin of trigeminal neuralgia. Some authors have found endarteritis and increase of fibrous tissue in the peripheral nerves; some have found degenerations in the Gasserian ganglia; others have found nothing abnormal. Operation is performed solely for the relief of pain. Neurotomy, first done in 1748, gives good immediate results, but is followed by regeneration. The same is true of the numerous forms of neurectomy and neurexairesis. The extirpation of the Gasserian ganglion gives fewer relapses but, according

to Frel, the mortality is 17%, and undoubted recurrences have occurred. The author advocates the plugging of foramina through which the divided nerve has passed with gold, silver, amalgam or celluloid. If this is done after division of nerves, he believes that extirpation of the Gasserian ganglion will become entirely unnecessary.

8. McCrury reports a case of right inguinal hernia of eight years' duration, for five years incarcerated. During the summer of 1905 a general decline in health with moderate fever occurred. At operation an omental hernia was found, riddled with abscesses, one of which led deep into the abdomen. Removal of portions of omentum and drainage resulted in recovery.

New York Medical Journal.

Sept. 29, 1906.

1. Burr, C. W.: *A Case of Myoclonus Epilepsy, with Autopsy.*
2. Seaman, L. L.: *Observations in the Tropics.*
3. Haynes, I. S.: *Gunshot Wounds of the Spinal Cord. A Plea for Early Myelorrhaphy.* (Concluded.)
4. Croftan, A. C.: *Drugs in Diabetic Glycosuria.*
5. Burke, J.: *Posterior Gastro-enterostomy; Extreme Gastroptosis, Motor Insufficiency, Epilepsy; Apparent Cure.*
7. Robinson, B.: *Pathological Physiology.*
8. Griffith, D. H.: *Etiology of Uterine Fibroids.*
9. Simpson, F. T.: *A Case of Westphal's Pseudosclerosis.*

3. Haynes quotes the results of previous statistics in gunshot wounds of the spinal cord, and shows that in the 46 cases which he has collected the mortality is less (52%) than in pre-antiseptic days. The danger is greater the higher the position of the injury to the cord. The author advises operation in *all* cases who survive the initial shock of the injury. In his 46 cases the mortality without operation was 69%; with operation it was 42%. Special stress is laid upon the advisability of suturing a severed cord. Cases and experimental data are given in full.

4. Croftan gives a brief account of the drug treatments which are used in diabetes with their effects. Opium and its alkaloids may cause complete disappearance of glycosuria in a patient in whom the glycosuria has been reduced by diet. It cannot, however, reduce the sugar excretion in a patient on carbohydrate diet. Its action is always uncertain, and ceases when the drug is stopped. Salicylic acid compounds, unlike the opiates, have more marked action in increasing tolerance for carbohydrate foods. Jambul has a very similar action. Alkalies should be given in every case for an indefinite period. Mineral waters have good effects. Potassium iodide and mercury should be given where syphilis is suspected. Pancreatic extracts and yeast have not yet succeeded in giving benefit. Tonics have little or no effect.

British Medical Journal.

Sept. 8, 1906.

The Seventy-fourth Annual Meeting of the British Medical Association Held at Toronto, Canada, Aug. 21, 22, 23 and 24, 1906.

SUMMARY OF THE PROCEEDINGS.

1. President's Address. Reeve, R. A.: *Thoughts on a Decade of Medicine.*

INTRODUCTORY REMARKS BY THE PRESIDENTS OF SECTIONS.

2. Anatomy. Robinson, A.: *The Teaching of Anatomy in the Universities and Medical Schools.*
3. Otology. Grant, J. D.: *Dangers to Otology.*
4. Obstetrics and Gynecology. Barbour, A. H. F.: *The Relation of Gynecology to the Work of the General Practitioner.*
5. Ophthalmology. Gunn, R. Marcus: *Introductory Remarks.*
6. Physiology. Halliburton, W. D.: *Proteid Nomenclature.*
7. Surgery. Cameron, H.: *Introductory Remarks.*
8. Therapeutics. MacAlister, D.: *An Imperial Pharmacopeia.*
9. The Annual General Meeting.
10. The Sections. *Brief Summary of Proceedings.*
11. Original Articles. Hewitson, John T., and Lloyd, Jordan: *Ovarian Pregnancy.*

1. After calling attention to the growth of the Association, founded at Worcester in 1832 with 140 members and now in the seventy-fourth year with over twenty thousand members, the President reviews carefully the advances which have been made in all branches of medicine during the last ten years.

11. Hewitson and Lloyd describe in detail a case of ruptured ovarian pregnancy with full report of the pathological findings and numerous microphotographs. A clear discussion of this extremely rare complication including a comparison with the few other reported cases follows.

Sept. 15, 1906.

1. Dixon, Samuel G.: *The Prevention of Tuberculosis.*
2. Roberts, James: *The Prevention of Tuberculosis.*
3. Gilchrist, A. W.: *Some General Analogies between Tuberculosis and Influenza.*
4. Probst, C. O.: *Some Doubtful Phases of the Tuberculosis Question.*
5. Homan, George: *The Dust Problem, as Presented in Domestic Households, Clubs, Hotels and Certain Other Establishments,*
6. Hill, Hibbert Winslow: *The Basic Factors of Present-Day Water Supply Problems.*
7. Robinson, W. T.: *Artificial Purification of Water Supplies.*
8. Holton, Henry D.: *Water Supplies.*
9. Starkey, T. A.: *General Water Questions.*

1. Dixon reviews in brief the results of the attempts, begun by himself in 1889, to bring about an immunity against tuberculosis by means of attenuated cultures, young cultures, filtrates, products of dead bacilli, etc., as suggested by Koch, von Behring, Trudeau, Maragliano and others. While in animals a certain degree of immunity has been produced, as regards humans we are in about the same position now that we were seventeen years ago. He urges further work on this subject.

2. Roberts speaks of the municipal control and prevention of tuberculosis. The Ontario Government offers a grant of 40% of the cost of erection of any sanatorium planned by any municipality and one and one-half dollars a week for the cost of each patient; as yet, however, very few have taken advantage of this offer. Nova Scotia has the first and only government sanatorium in Canada. Compulsory notification has done a great deal, especially in New York under Biggs; in Canada anti-spitting ordinances are being enforced. As yet in this country sanatoria have done very little to prevent tuberculosis; 90% of all consumptives must be treated in their own homes; on the general practitioner lies the great obligation to educate and train the public at large.

4. Probst considers some mooted points on the tuberculosis question. He inclines to the opinion that far more money is spent on cattle inspection and slaughter than is needed; that it might be better spent along other lines. He discusses the point as to how far any consumptive must be restrained from exercising his privileges as a citizen, — school, church, work, etc.

5. Homan deplores the widespread use of carpets in our American dwellings and speaks of broom and duster cleaning as farcical. He thinks vacuum cleaning methods should be made compulsory in every hotel, club, church, theatre, office-building and public institution.

6. In a careful address on the water supply problem Hill urges, among other things, the development of a municipal sense of responsibility regarding each municipality's water supply. Far too much attention is paid to inspecting milk, meat and other products and not enough to water. By arousing public sentiment water supplies of a high order of excellence can be maintained.

Sept. 22, 1906,

1. Harcourt, R.: *The Protection and Control of the Milk Supply.*
2. Glaister, J.: *The Sanitary Control of the Milk Supply.*

3. Patten, H. Cooper: *Protection and Control of Milk Supply.*
4. Cassidy, J. J.: *The Hygiene of the Home.*
5. MacMurchy, Helen: *Medical Inspection of School Children Attending Elementary Schools.*
6. Scott, William: *The Medical Inspection of Schools.*
7. Elliott, J. H.: *Present Status of Antituberculosis Work in Canada.*
8. Marten, A. F.: *The Significance of Some Enlargements of the Thyroid Gland.*
9. Paget, Stephen: *Simulation of Mastoid Disease.*

2. Glaister sums up the desiderata of a proper milk supply as follows: (1) Inspection of the premises of every farm sending milk to the city, by a qualified sanitary expert, and a guaranty given to the milk seller. (2) Systematic official inspection of farms and their water supplies. (3) Registration, after inspection of such farms.

5. Japan has twice as many school doctors as all the rest of the world put together. The need of systematic inspection of school children is just beginning to be realized, although there has been more or less done along this line in Europe since the twelfth century. Japan has 8,424 school doctors, the United States 600. An essential feature is to get the co-operation of the parents. A medical inspector should examine the buildings as regards ventilation, lighting, heating, etc.; he should instruct teachers in preventive medicine and institute popular lectures to pupils and he should make a careful physical examination of the child, especially as regards development, height, weight, eyes, ears, teeth, etc., and should look for signs of over-pressure or fatigue.

7. Elliott gives a list of the antituberculosis organizations in Canada with a brief description of each. What needs to be done is along enforcement of anti-spitting laws, arousing local boards of health, getting physicians to instruct their private patients and providing dispensaries for treating and educating the poor.

The Journal of the American Medical Association, Sept 29, 1906.

1. Jacobi, A.: *Proprietary Medicines.*
2. Dock, G.: *Proprietary Medicines and their Abuses.*
3. Cabot, R. C.: *The Physician's Responsibility for the Nostrum Evil.*
4. MacCallum, W. G.: *Cirrhotic Changes in the Liver Following a Single Injury*
5. Eisendrath, D. N.: *A Plea for More Radical Operations in Cancer of the Lips and Tongue.*
6. Matas, R.: *The Radical Cure of Aneurism.*
7. Ring, G. O.: *The Value of X-rays in Ocular Therapeutics.*
8. Norton, J. P.: *The Economic Advisability of Inaugurating a National Department of Health.*
9. Rosenau, M. J., and Anderson, J. F.: *Hypersusceptibility.*
10. Parks, A. H.: *Determination of the Normal Temperature of the Closed Inguinal Fold of a Child, and its Clinical Significance.*

4. MacCullum calls attention to cases in which at autopsy the liver shows the presence of irregular fine lines of scar tissue throughout its substance. These cases are commonly assumed to have incipient cirrhosis. But we have no evidence whatever that the condition is part of a progressive process. The author maintains that these lesions are merely the scars of old necroses, the result of acute infections or intoxications in the past.

6. Matas has collected forty cases of "endo-aneurismorrhaphy," illustrating his method. Three types of operation are practised. The first, or obliterative, consists in opening the sac and suturing all visible arterial orifices from within, without attempt to restore the continuity of the artery The second, or restorative, operation is applicable only to aneurisms of a sacciform type, and consists in opening the sac and closing the opening into the artery by continued suture. The third, or reconstructive, is where a plastic operation is done forming a new channel out of the sac walls. Of the first type 22 operations have been reported. Of the second, 9 have been published, all successful. Of the third class, 5 have been performed; 2 have relapsed and 3 have remained without relapse. The cases collected were 55% popliteal and 32% femoral.

9. Rosenau and Anderson call attention to the phenommena of hypersusceptibility. This subject is suggested by their observation that in guinea pigs once injected with horse serum, the injection of a smaller dose after ten or twelve days will prove fatal. Thus the animal has been rendered *hypersensitive* by the first dose. An analogy suggests itself between this condition and the increased susceptibility of the tuberculous patient to tuberculin. An immunity against this toxic action of horse serum can be obtained by repeated injections of serum at short intervals. In human beings no cases have been recorded as showing this condition of hypersusceptibility, though in many cases children have been injected at short or long intervals with diphtheria antitoxin. Yet the possibility of such a reaction must be considered in the rare cases of sudden death following the injection of horse serum.

10. Parks gives the results of temperature observations in children taken simultaneously in the rectum and in the groin. The normal temperature in the groin is 98.52° and is ½° F. lower than the rectal temperature. For practical purposes this inguinal temperature is as reliable as the rectal, and possesses advantages in the way of convenience.

The Lancet, Sept. 8, 1906.

1. Jones, Robert, Medico-Psychological Association of Great Britain and Ireland: *Presidential Address on the Evolution of Insanity.*
2. Steven, J. L.: *A Lecture on Epidemic Cerebrospinal Fever with Illustrative Cases.*
3. Potter, E. F.: *The Submucous (or Window) Resection Operation for Correction of Deviation of the Nasal Septum.*
4. Pierce, R. W. C.: *Presence of the Bacillus Typhosus, or a Closely Allied Organism in a Sample of Distilled Water Suspected to have Caused Typhoid Fever.*
5. Burnet, J.: *Some Remarks on the Therapeutic Action of the Iodides.*
6. Sutcliffe, W. G.: *Three Cases of Twisted Pedicle.*
7. Hayward, W. C.: *A Presumed Case of Acute Yellow Atrophy of the Liver.*
8. Breinl, A., and Kinghorn, A.: *A Preliminary Note on a New Spirochete Found in a Mouse.*
9. Falconer, S. L.: *A Case of Intussusception Illustrating the Fallacies and Dangers of the "Inflation" Treatment.*
10. Thomas, H. W.: *First Report of the Expedition to the Amazon, 1905.*

5. Burnet thinks that the most important use of the iodides is in the treatment of aneurism. Balfour and others maintain that the drug lowers the blood pressure by dilating the arterioles, thereby allowing the vessel wall to contract and that it does not in any way help the formation of clots. Burnet has proved that it does not reduce the blood pressure and he is of opinion that it does increase the coagulability of the blood, hence its good effect in hemophilia. He gives it subcutaneously as iodipin, a 25% chemical combination of iodine and sesame oil, 15 cc. every second or third day, thus avoiding gastric disturbance and loss of appetite, which generally follow its prolonged administration by mouth. The action of the iodides in aneurism is still unexplained; the antisyphilitic theory is often not supported by facts: Burnet thinks that its chief effect is as an aid to blood coagulation, perhaps, also, in helping to eliminate the poisons which have brought about the aneurism. The action of iodine in arteriosclerosis is in the same obscurity. Vierordt and Huchard say that it has a definite effect in resolving the sclerosed tissue in the vessel walls and also that it reduces blood pressure. Burnet thinks that its chief use, as in aneurism, is as an aid to elimination. The action of this drug on uric acid is peculiar, for while during its administration uric acid elimination is diminished, it

increases after the drug is withdrawn. This is due, it is supposed, to the fact that iodine renders the blood less able to hold uric acid in solution and therefore less is eliminated.

In angina pectoris he recommends potassium iodide in 30 to 60 grain daily doses for months. Beside the effect on the arteriosclerosis and a possible syphilis he is of the opinion that the iodides have a definite antispasmodic action. In respiratory diseases he depends almost entirely on this drug preferring iodipin subcutaneously or by mouth to potassium iodide as its effect is much more prolonged. One dram of iodipin, 10%, equals 8 gr. of the salt. It is best given on an empty stomach. Its action in asthma as in angina is due, he thinks, to its anti-spasmodic effect. In chronic rheumatism it acts by preventing the blood from taking up so much uric acid as it otherwise might. He uses the iodides in all kinds of chronic inflammations, in chronic interstitial nephritis and chronic metal poisonings; in goitre and in exophthalmic goitre its action is still uncertain.

Sept. 15, 1906.

1. Toogood, F. S.: *A Presidential Address on Ten Years of Lunacy Treatment in Lewisham Infirmary.*
2. Travers, Frederick T.: *Suture of Perforating Wound of the Heart, Death on the Eleventh Day.*
3. Andrews, F. W., and Horder, T. J.: *A Study of the Streptococci Pathogenic for Man.*
4. Lewis, Thomas: *The Pulse in Aortic Disease; the Relation of Pulse Curves to Blood Pressure.*
5. Wright, William: *The Rash in Cerebrospinal Meningitis.*
6. Cockle, Walter P.: *A New Method of Administering an Anesthetic through a Tracheotomy Tube.*
7. Posnett, W. G. T.: *Ankylostome Parasitism among the Native Laborers in the Transvaal.*
8. Shenton, W. H.: *Urinary Calculus and its Detection with the X-rays.*
9. Moon, R. O.: *Some Observations on Convulsions in Children and their Relation to Epilepsy.*
10. Shackleton, William W.: *The Prophylactic Use of Anti-Diphtheritic Serum.*

2. Travers describes a case of a young man of nineteen, who impaled himself on a spike while climbing a fence, inflicting a lacerated wound of the heart. With three fingers in the wound inside the heart the opening was closed up one finger at a time being removed. The boy did well for a while but died on the eleventh day.

4. Lewis has made a careful study of aortic regurgitation. He summarizes his results in a table and concludes as follows: (1) 14 cases, average age thirty-six years, showed a systolic pressure of 132 mm. (2) Four cases with chronic interstitial nephritis and average age forty-six years showed a pressure of 163 mm. (3) There was no definite relationship between the blood pressure and the amount of arteriosclerosis.

8. Shenton believes that the x-ray is not enough used or properly used in the diagnosis of renal stones. This is due to the fact that the x-ray photograph is used instead of the screen examination. In the latter, improvements have been made which render it of far more value than the ordinary radiogram He gives his method in detail.

Sept. 22, 1906.

1. Moullin, C. Mansell: *A Clinical Lecture on the Early Diagnosis of Cancer of the Stomach.*
2. Andrews, F. W., and Horder, T. J.: *A Study of the Streptococci Pathogenic for Man.*
3. Young, Eric E.: *Successful Treatment of a Case of Thoracic Aneurism Threatening to Rupture Externally.*
4. Corner, Edred M.: *Concussion of the Spine, with Some Remarks on Concussion in General.*
5. Harrison, Reginald: *A Note on Boric Acid Relative to Appendicitis.*
6. Mackey, Charles: *A Case of Osteitis Deformans with Huntington's Chorea.*
7. Worthington, Robert A.: *Some Observations on Stammering and its Treatment.*
8. Wright, G. A.: *Phlegmonous Cholecystitis.*

3. Young describes a case of aneurism of the aorta, which formed a large pulsating mass in the episternal notch, and threatened to burst any minute, successfully treated with increasing doses of iodide of potassium with absolute rest and a very much limited diet.

5. Harrison thinks that boric acid used as a food preservative may be an important etiological factor in appendicitis, not only because of the chronic indigestion caused by its use but because of the flatulency it is known to cause, thereby distending the appendix and allowing fecal accumulation within it.

8. Wright defines phlegmonous cholecystitis as a severe form of acute inflammation of the gall bladder, going on to suppuration in the wall of the gall bladder, or even to gangrene. It is a rare condition and little mention is made of it in textbooks; Potain first described it in 1882. It may be mistaken for acute intestinal obstruction, acute pancreatitis and acute appendicitis. Even with operation the mortality is exceedingly high. Typhoid fever and gallstones must be considered as the most common causes of the disease although most cases of perforation of the gall bladder in typhoid differ in their clinical picture from this acute fulminating cholecystitis. The onset is very sudden with pain and tenderness in the gall bladder region. All the symptoms are very severe. Vomiting is usually present. An immediate operation is indicated and the exposed gall bladder must be incised and drained, or, if gangrenous and the patient is not too feeble, removed. He reports three cases, one of which recovered.

The Practitioner.
September, 1906.

1. Gibson, G. A.: *Angina Pectoris.*
2. Manning, T. D.: *An Improved Method of Putting up Fractured Clavicles.*
3. Fothergill, W. A.: *On the Diagnosis of Abdominal Tumors in Relation to Pregnancy.*
4. Sheill, J. S.: *Asphyxia Neonatorum: Its Causes and Treatment. A Discussion on the Many Theories and Practices of the Present Day.*
5. Taylor, Frank E.: *On the Use of Rubber Gloves in Abdominal Operations.*
6. Ransom, W. B.: *A Case of Infantilism.*
7. Lake, Richard: *Synopsis of Recent Progress in Otology.*
8. Walker, J. W. Thomson: *The Estimation of the Functional Value of the Kidneys.*
9. Priestley, J.: *History of a Diphtheria Outbreak (complicated with Vincent's Angina) at the Lambeth Parochial Schools, West Norwood, May to July, 1905.*
10. Barber, H.: *The Nature and Treatment of Angina Pectoris.*

8. Walker gives the present opinions held on this subject and the various methods in use to determine the functional value of the kidneys, especially from the surgeon's standpoint. He considers it under the following headings:

(*a*) The value of the total renal function. Here he discusses the value of the chemical analysis of the urine, the density, and especially cryoscopy of the blood and urine in all its details, the methylene-blue test and the phloridzin test.

(*b*) Fallacies which must be considered in estimating the functional value of each kidney and the methods for estimating the functional value of one of the kidneys and the comparative functional value of the two kidneys.

Deutsche Medizinische Wochenschrift, No. 37.
Sept. 13.

1. Redlich, E.: *The Treatment of Epilepsy.*
2. Kuhn, E.: *A Mask to Produce Passive Hyperemia of the Lungs.*
3. Solmersitz, F.: *Aspergillus Infection of the Lungs.*

4. Stoutz, W., and Ulrici, H.: *Observations on Diet in Consumption.*
5. Bence, J.: *Three Cases of Plethora.* (Concluded.)
6. Hollister, J. C.: *Condition of the Spleen in Carcinoma.*
7. Sippel, A.: *Remarks on the Disinfection of the Hands and on Asepsis in Laparotomy.*
8. Ramshorn, R.: *Unguentum Sulfuratum Mite (Thygolip).*
9. Sachs, A.: *Muscle Transplantation in the Treatment of Infantile Paralysis.*

1. In general, epileptics should not marry on account of the danger that the offspring may become epileptic or neuropathic. Pregnancy is likely to make the disease worse. Reflex epilepsy may sometimes be cured by removing the source of irritation but the fits may continue after the apparent cause has been removed. Epilepsy due to alcoholism may be cured, if not of too long duration, by abstinence. In those rare cases where syphilis is the cause of true epilepsy, recovery sometimes but not always follows the use of specific treatment. In all cases the regulation of diet and hygiene is of the greatest importance. The diet should be chiefly vegetable, with meat only once a day. The author has found a diet containing little salt, combined with the bromide treatment, as recommended by Toulouse and Richet, of value. Mild hydrotherapy may be of advantage, but electricity is useless. Of drugs, the bromides still maintain their superiority, especially a mixture of sodium, potassium and ammonium bromide. The dose should be increased up to the point where the fits cease altogether or become of a mild type (2 to 8 gm. per day). The bromide acne may be partly avoided by care of the skin and the use of arsenic internally. Apathy, stupor, loss of the corneal reflex, anorexia, emaciation, etc., are symptoms of bromide poisoning and call for an immediate withdrawal of the drug. Flechsig's combined treatment with opium and bromides is recommended for those cases where the ordinary forms of treatment are without effect; it is not without its dangers. Atropine and zinc preparations are inferior to bromides but may be used where the latter are contra-indicated.

For status epilepticus, chloral, dormiol, inhalations of chloroform. Not much permanent benefit is to be expected from operative treatment. The excision of parts of the motor cortex is not recommended, but rather trephining in desperate cases. The excision of the cervical sympathetic is condemned.

2. Kuhn describes a mask which produces passive hyperemia of the lungs by means of obstruction to nasal respiration. By means of x-rays he shows that this obstruction diminishes the downward movement of the diaphragm and on theoretical grounds, and by comparison with a model constructed for the purpose, he claims that passive hyperemia of the lungs is thus induced. The beneficial effect of passive hyperemia is inferred from the well-known rarity of phthisis in cardiac cases with marked congestion of the lungs, and from the mild form which phthisis assumes when it occurs in such subjects. The predisposition of the apices to tuberculosis he ascribes to a relative anemia; this anemia is due to diminished aspiration of blood, the latter resulting from deficient aëration. The use of the mask is recommended for early and moderately advanced cases. Hemorrhages from the lungs have not occurred during this treatment. A striking effect has been the increase in the number of the red blood corpuscles, which occurred in 7 out of 8 cases. The method is being used now in several hospitals in Berlin, but it is too early to give positive results.

3. Aspergillus mycosis of the lung is usually a secondary infection in bronchopneumonia and phthisis. Saxer has shown, however, experimentally, that the aspergillus fumigatus can of itself cause inflammation, necrosis and cavity-formation. The symptoms vary from those of a simple bronchitis to those of cavity-formation and phthisis. Diagnosis is to be made in life by the finding of mycelia, spores or spore-bearers, and should be confirmed by culture experiments. Solmersitz reports a case of primary infection with aspergillus fumigatus in a woman of about twenty-six years. The signs resembled those of phthisis, but the sputum contained no tubercle bacilli; mycelia and spores were always present. Cultures on agar show characteristic colonies with a dark green color. The patient is still under observation.

4. Stoutz and Ulrici report on the use of Odda M.-R., an artificial food containing 16.6% proteids, 8% fat, 68% carbohydrates. In the form of soup it was well taken and assimilated, and proved very valuable in those cases in which a concentrated form of liquid food was desired.

5. Bence gives a full discussion of the disease called variously plethora, polyglobulia, or polycythemia, and reports three new cases, very carefully worked up. His cases all showed the cardinal symptoms of cyanosis, increase in the red count (up to 11.5 million) and enlarged spleen; albuminuria was noted in only one. He found the viscosity of the blood increased, up to four times the normal. The freezing point of the blood was diminished; this is strongly against an increase in the CO_2 content as a cause of the cyanosis. He holds that the cyanosis is due to the increased number of red corpuscles, and to the dilatation of the superficial blood vessels; the hyperplasia of the red bone-marrow found in some cases lends support to this view. Like Türk, he found a few nucleated red cells in every case, and an increase of the polynuclear leucocytes, findings which point to a stimulation of the bone-marrow. Mohr has shown that in plethora there is a diminished power of the hemoglobin to combine with oxygen, and this Bence considers the primary cause of the disease, the stimulation of the bone marrow being secondary. The daily inhalation of oxygen with occasional venesection produced marked alleviation of the symptoms, due, no doubt, to the decrease of the red count, and of the viscosity, which Bence's measurements showed to have occurred.

6. Hollister, in 114 cases of cancer, found the spleen normal or diminished in size in 92, enlarged in 22. The enlargement could always be explained by one of the following factors: (1) Obstruction in the territory of the portal vein; (2) secondary infections; (3) cancerous metastases in the spleen. These facts militate against the theory that cancer is an infection with parasites, and are also of diagnostic importance, especially in distinguishing cancer from cholecystitis. Atrophy of the spleen was present in many cases, and was referred to senility and cachexia.

9. This interesting article by Sachs reports a successful transplantation of the greater pectoral muscle to take the place of the deltoid, in a child with infantile spinal paralysis. This has been done once before by Hildebrandt. The pectoralis major was freed from its points of origin at the ribs, the sternum and the clavicle, with careful preservation of the nerves with their vessels, and was swung around through an angle of 90° and sewed to the outer end of the clavicle, to the acromion and the outer part of the spine of the scapula. The deltoid was found to be completely atrophic. Good function of the muscle in its new position was the result.

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Correspondence.

SUGGESTIVE HEALTH RESORT AT LAKE MAGGIORE.

Il Sanatorium Monte Verità.

[*Letters from Our Special Paris Correspondent.*]

Paris, Sept. 28, 1906.

Mr. Editor: The southern portion of Lake Maggiore extends out on to the great level plain of the Po; but the northern end is driven like a wedge well up into the hills of the Italian side of the Alps. On the western bank of this part, not far from Locarno and five hundred feet above the village of Ascona on the water, is situated the Sanatorium of Monte Verità.

It is not a widely-known institution as yet, and has room so far only for about twenty inmates; but it is placed in such a remarkable site, is favored with such a remarkable climate, and is run on such interesting lines as to be well worth a visit.

The founder, a Belgian and a man of means, is not a physician; he is merely a person anxious to build up a colony where people can lead a simple and healthy life reverting to more primitive and saner ideas.

Obliged quite early in life to take heed to his own health he discovered that he derived far greater benefit from a German sanatorium where vegetarian diet and rational dress were enforced than from the counsels and remedies of the many physicians that he had seen.

This being the case he reflected that what he had found so beneficial under the gray and chilly skies of Saxony would prove many times more beneficial still when carried out in a milder climate where there was plenty of sunshine.

So after spending some time in looking around he finally chose and bought all the top of this hill back of Ascona, which for its particular purpose it would be difficult to surpass.

The general exposure is southeast. At his feet is stretched all the northern half of the lake. Directly back of him are mountains running up to 11,000 feet, which effectually protect him from cold winds from the north. As his ground lies along the back of this final spur of the hills he gets light and air from every side.

The vegetation of the region is luxurious, sub-tropical, and the verdure is incomparable. For all this southern slope of the Alps has a great deal of rain; but —peculiarity of the district — it comes in the form of storms, and not of settled bad weather. Walnut and chestnut trees abound; almonds, tamarinds, magnolias, oleanders, vineyards, the most superb hortensias, figs, a profusion of creeping vines, — it is hard to tell what is not to be found in this highly favored country, and in the bewildering sunlight the little lizards bask and wriggle and seem to be saying that it is well to be there.

MONTE VERITA

The view is of great beauty, whether over mountain, valley or lake. The glaciers are hardly visible, though they are not far away. Quaint little Italian villages, buried in vines and vegetation which smother everything, rear their tall and slender campanili aloft in all directions, — one of them near by, with a deep terra-cotta colored cupola, is a perfect gem. The still, blue surface of the lake is dotted with islands and furrowed by the occasional track of a passing steamer; while all along its banks the gay little towns hum with life and coquet with their reflections in the mirror at their feet.

Here, as all along this northern edge of Lombardy and Piedmont, a pleasant wind seems always blowing. In the sun it may be so hot in summer that you seem to feel your cerebrospinal fluid bubbling; but the moment you come to rest in the shade you are cool, and may become almost too much so.

In short, it is a place where everything conduces to rest and composure. You are out of the whirr and struggle of life, and yet you can see it going on from a distance. You cannot conceive of a place better fitted for jangling nerves and irritable spines; and you are convinced that a few weeks' abode on this lotus-eating ridge would reduce you to the frame of mind of Daudet's sub-prefect who, you remember, lay on his back in the grass under the trees, listening to the crickets and writing verses, when he ought to have been making his *administrés* unhappy in some way or another.

The inmates of Monte Verità live in small bungalows, open, yet shaded by trees; for the sun shines nearly all the year round here, at any rate from March to December, the finest months, perhaps, being March and April. Snow and frost are exceptional. The rooms are small and simple, but quite comfortable.

The dress recommended is as follows: For men, an openwork undershirt; linen jacket and loose running-knickers; sandals; no hat. This for summer.

In winter the linen can be replaced by velvet, and a cape can be thrown over the shoulders. The legs should not be bare in winter, as Mr. O. thinks that the blood is thereby driven from the periphery to the centers which become engorged in consequence. This does not quite harmonize with the senseless practice many mothers have of dressing their children in short, white clothes in winter, under pretence of hardening them; particularly when we bear in mind that, owing to the difference in the ratio between surface and volume, children lose heat much more easily than adults.

Women wear an undergarment from waist to knees; a kimona, more or less thick; sandals; no hat and a chemise in cold weather.

In the way of occupation there is everything that such a favored situation would naturally be expected to supply, including mountain-climbing and glacier excursions; so that exercise in every form and of the most attractive kind can be indulged in. Consequently, there is plenty and more to do, and no one need feel bored.

An essential feature of the place is the sun bath. Large spaces are enclosed with high board fences, one for either sex, and in these little parks the inmates take off all clothing and expose their bodies to the sun for varying lengths of time, lying on the grass, walking, sitting, — doing pretty much as they like. The bath is followed by a wash in water slightly warmed by the sun. The idea of this practice is that the revulsion produced by the sun on the skin renders the circulation freer in the central organs, and stimulates the nerve centers by acting on their peripheral terminations.

Before coming to the diet question, the most original side of this resort, it may be wise to say that there is no religious element at Monte Verità. Mr. O. simply wishes to show people what they can gain by living away from towns on common-sense principles. It is not a place for the really ill, and, in particular, not for phthisis. There are no vexatious rules, and perfect freedom is allowed. People are advised to begin gradually, and get used to this new life by degrees; but some cannot stand the diet and soon leave. And now for the diet!

There are three special features in the Monte Verità diet:

(1) It is true vegetarianism; that is, nothing but vegetables, salads, fruits and nuts are given. Eggs and milk are excluded, as also cream and cheese, and, of course, meat, fish, poultry and alcohol.

(2) No salt is taken beyond what is contained naturally in the food. Ms. O.'s objection to salt seems to be that it produces or encourages thirst, which he considers undesirable.

(3) He recommends people to learn to get along without drinking. He personally has succeeded in suppressing thirst practically altogether. He goes *for months*, literally, without drinking a drop. He can make long and fatiguing mountain excursions, which I know from having done them, on a few nuts and without a drop of liquid.

He tries to reduce his cooking to its simplest expression, as he holds that every article of food loses a certain portion of its potential energy in the process of cooking. Still, a little cooking has to be done for certain vegetables and fruit, and also for preserving for the winter season; cocoa is given in the morning to those persons who feel the deprivation of something hot at that meal.

Each inmate's meal is prepared on a tray, which can be carried off and consumed at leisure anywhere in the grounds. Meals can often be taken out of doors in winter, when the temperature in the sun has been noted as high as 28° C. There are three meals a day, amounting in weight to 1½ or 2 kilos. Great stress is laid on nuts as an article of food, and every conceivable variety is procured. Nuts have to be eaten slowly, and a meal taken slowly gains in dynamic effect.

Now some of these ideas are rather startling, and probably the best way in which to form an opinion as to whether Mr. O.'s plan is a working scheme, will be to take a look at the man himself, as he has put it in practice for ten years.

He is now about thirty years of age, spare, erect, with vigorous, springy gait. His features are thin, his skin bronzed, and there is not a particle of fat about him, his weight being 65 K. now, as against 80 K. formerly. He certainly looks more than his age, and this spareness would not suit many women. Long going without a hat enables him to look about him in the sunlight without scowling. His muscles are hard. The easy, loose garments fill one with envy in this hot weather; fancy being rid of starched shirts, cloth clothes and leather shoes!

THE "PADRONE."

He claims to derive as much pleasure from one of these meals as we do from a repast at Paillard's; and this is no idle talk, as he knows what food is, and goes frequently to Paris. Besides, are not the Belgians perhaps the most famous eaters and drinkers of Europe?

On such food the bowels move two or three times a day, and he looks on this as a *desideratum*, reverting more to the animal type where residuum is thrown off steadily when no longer useful. He holds that we have all more or less distended stomachs, and that the rectal pouch has only been developed into a reservoir in man by habit. Were feces promptly eliminated there would be no stagnation or fermentation, and consequently no disorders of the large intestine, hemorrhoids, colitis, etc.

The kidneys are stated to secrete a normal amount of urine on this diet.

The tongue and teeth are clean, buccal fermentation being absent. The day I was at Ascona Mr. O.'s tongue was slightly coated. This he explained by the fact that his mother had arrived the day before, and not caring for his diet had brought all sorts of food to the place, insisting on his partaking of some of it.

His muscular strength and endurance leave absolutely nothing to be desired. It would be interesting to know the effect of this diet on the sexual instinct. Curiously enough the people of the country, prone to adverse criticism concerning things they do not understand, say openly that the Monte Verità people have no children. In this connection, and as regards the amount of physical exercise, the inmates take on this limited regimen, a good woman, with whom we conversed at length in a diligence made a most amusing statement. Said she: "Yes, exercise is all very well, *ma ci vuole anche la ginnastica della gola, bisogna mandargiu!*" and with her finger she made the expressive gesture of stoking the esophagus.

Such, then, has been the effect of this life on Mr. O. Another man I saw walking about the place appeared to be physically quite comparable to him, thin and hard. A lady with whom we had some conversation said she found the diet trying, milk being the article she could not get along without. And I suppose I shall be betraying confidences when I say that she confessed to slipping down to Ascona pretty often to procure some.

A visit to such a place as this shows very forcibly that both in the life we modern people lead and in the food we eat there is room for very great improvement. I thought as I watched the free and easy stride of this man over the lawn, of how he would appear in the city gentleman's afternoon costume of the present day! While the white linen that suits Ascona might not suit Paris or Boston, how easy a matter it would be to introduce an attire less grotesque and barbarous than what is now considered good form in the club district of Pall Mall.

Again, in the matter of food. No one questions, I imagine, that city people eat far too much, and that our meals are unnecessarily nourishing. There is no doubt that with our present cuisine we are all steadily digging our graves with our jaws, and that with food far simpler in kind and less abundant in quantity we should be better in health as well as more vigorous in mind. Just look for one moment at those fine types of men, the Arab, the Indian and the Swiss Mountain guide; consider what muscular energy they can supply, and on what, in the way of food? Almost nothing. The fact that we city people live as long as we do in spite of the way we eat, merely shows once more what a remarkable machine the human body is, and how it can adapt itself as well to abundance as to penury.

The question of drinking, or not, is largely one of habit. In two weeks a person who so wishes, can reduce his daily quantity to almost nothing, from being accustomed to several glasses of water at each meal. Lettuce and asparagus actually contain more water than milk, a fluid; if you wish to get your water by chewing, instead of by drinking, it matters not, so long as you get it.

The salt question is also one of custom. A number of tribes are known (Africa, Siberia) who never touch salt. But the peculiar point here is that these people who eliminate salt at Ascona are *vegetarians*. Now in the animal kingdom those that crave salt the most, and will do anything to get it, are precisely the grass eaters. Thus a dog, or a cat, is indifferent to salt; but horses, cattle, deer or goats have a passion for it. A mountain goat will lick the white-washed wall, or your fingers, merely for their salty taste, and any time you wish to experience some of the emotions of a cavalry charge in war, go among a flock of goats with a paper of salt and begin to feed it to them from your hand. Such goats will turn instantly from either sugar or biscuit, if salt is offered to them; and a curious point in this connection is that a little salt given each day to milch-goats removes almost entirely the high and unpleasant flavor of their milk.

However, to bring these lengthy remarks to a close, — Ascona as I saw it is a place of superlative beauty, highly suited for a rest cure for broken-down nerves. Anyone not able to stand the severity of the diet could easily devise means of beating the devil around a stump. Certainly, on the day when my nerves go the way of all modern nerves, I have made up my mind that Ascona will be the place for me. Those wriggling lizards showed me what to do: to bask in the sunlight among the oleanders and the blue hortensias; to watch the little steamers trace their furrows up and down the surface of the placid lake; and to forget for the while the disagreeable, wrangling world.

"Spectator."

RECORD OF MORTALITY

For the Week ending Saturday, Oct. 11, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,284	475	Quincy	1	2
Chicago	538	193	Waltham	4	1
Philadelphia	439	145	Gloucester	—	—
St. Louis	—	—	Pittsfield	13	2
Baltimore	180	70	Brookline	3	—
Cleveland	—	—	North Adams	3	1
Buffalo	—	—	Chicopee	4	3
Pittsburg	—	—	Northampton	5	3
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	6	2
Washington	—	—	Hyde Park	5	—
Providence	69	18	Newburyport	—	—
Boston	187	60	Leominster	—	—
Worcester	34	15	Melrose	3	1
Fall River	34	19	Woburn	7	1
Cambridge	28	12	Marlborough	5	1
Lowell	32	12	Westfield	—	—
Lynn	20	4	Peabody	—	—
New Bedford	29	7	Revere	4	2
Springfield	16	5	Clinton	9	—
Lawrence	31	15	Attleboro	4	1
Somerville	19	7	Adams	2	—
Holyoke	19	9	Gardner	3	1
Brockton	13	1	Milford	5	3
Malden	11	5	Weymouth	4	1
Salem	11	4	Framingham	6	1
Chelsea	13	3	Watertown	[illegible]	2
Haverhill	17	2	Plymouth	—	—
Newton	8	4	Southbridge	5	4
Fitchburg	5	2	Wakefield	4	—
Taunton	14	5	Webster	—	—
Everett	5	2			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 26, 1906.

Gassaway, J. M., surgeon. Granted leave of absence for three days. Sept. 20, 1906.

White, J. H., surgeon. Granted leave of absence for seven days from Sept. 23, 1906. Sept. 22, 1906.

Guiteras, G. M., surgeon. Granted leave of absence for one day. Sept. 20, 1906.

Wertenbaker, C. P., surgeon. Granted extension of leave of absence for seven days from Sept. 22, 1906. Sept. 21, 1906.

Stimpson, W. G., surgeon. Granted leave of absence for two days from Sept. 21, 1906. Sept. 20, 1906.

Lavinder, C. H., passed assistant surgeon. Relieved from temporary duty at Detroit, Mich., and directed to proceed to Stapleton, N. Y., reporting to the medical officer in command for duty and assignment to quarters. July 30, 1906.

Grubbs, S. B., passed assistant surgeon. Granted leave of absence for two days. Aug. 30, 1906.

Hobdy, W. C., passed assistant surgeon. Detailed to represent the Service at the semi-annual meeting of the California Public Health Association at San José, Cal., Oct. 10, 1906. Sept. 24, 1906.

Ward, W. K., assistant surgeon. Granted leave of absence for seven days from Sept. 24, 1906, under the provisions of paragraph 191 of the regulations.

Gibson, L. P., acting assistant surgeon. Granted leave of absence for five days. Sept. 24, 1906.

James, W. F., acting assistant surgeon. Leave of absence without pay granted to Acting Assistant Surgeon James, for fifteen days from Aug. 31, 1906, revoked. Sept. 24, 1906.

Scott, E. B., pharmacist. Granted leave of absence for twenty-three days from Aug. 23, 1906, on account of sickness. Sept. 21, 1906.

Scott, E. B., pharmacist. Granted leave of absence for twenty-four days from Sept. 20, 1906. Sept. 24, 1906.

Slough, Charles, pharmacist. Relieved from duty at Honolulu, T. H., and directed to proceed to San Francisco, Cal., reporting to the medical officer in command for duty and assignment to quarters. Sept. 24, 1906.

Beck, J. E., pharmacist. Relieved from duty at San Francisco, Cal., and directed to proceed to Honolulu, T. H., reporting to Chief Quarantine Officer for duty and assignment to quarters. Sept. 24, 1906.

Hills, George W., pharmacist. Granted leave of absence for thirty days from Sept. 22, 1906. Sept. 24, 1906.

Hall, L. P., pharmacist. Granted leave of absence for seven days from Sept. 23, 1906, under paragraph 240 of the regulations. Sept. 22, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING OCT. 6, 1906.

A. H. **Wentworth**, surgeon. Detached from U. S. R. S. "Franklin," Navy Yard, Norfolk; and ordered to the "Louisiana," sailing Oct. 4, 1906.

S. G. **Evans**, surgeon. Detached from "Louisiana" and from treatment at the Naval Hospital, Boston, Mass., and granted sick leave of absence for two months.

P. A. **Lovering**, medical inspector. Detached from duty U. S. Naval Medical School, Washington, D. C., and ordered to command the U. S. Naval Hospital, Norfolk, Va.

F. H. **Brooks**, assistant surgeon. When discharged from treatment at U. S. Naval Hospital, Newport, R. I., granted sick leave of absence for six weeks.

W. R. **DuBose**, medical inspector. Detached from duty as assistant to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., etc., and ordered to command U. S. Naval Hospital, Yokohama, Japan, sailing Oct. 20, 1906.

J. H. **Halloway**, passed assistant surgeon. Ordered to the "Nevada."

A. D. **McLean**, passed assistant surgeon. Detached from Navy Recruiting Station, Cincinnati, Ohio, and ordered to duty at Navy Recruiting Station, Detroit, Mich.

J. S. **Woodward**, assistant surgeon. Ordered to Navy Recruiting Station, Cincinnati, Ohio.

John C. Boyd, medical director. Ordered to duty in command of the U. S. Naval Medical School Hospital in addition to present duties.

J. P. **DeBruler**, assistant surgeon. Ordered to duty at U. S. Naval Medical School Hospital, in addition to present duty.

SOCIETY NOTICE.

Medical Section of the Suffolk District of the Massachusetts Medical Society and the Boston Medical Library. — Meeting of the Medical Section of the Suffolk District of the Massachusetts Medical Society and the Boston Medical Library, Wednesday, Oct. 17, 1906, John Ware Hall at 8.15 P.M. The subject, "Principles of the Treatment of Bacterial Diseases by Therapeutic Inoculations of the Corresponding Vaccines," by Prof. A. E. Wright, of England.

Richard C. Cabot, *Chairman*.
Edwin A. Locke, *Secretary*.

RECENT DEATHS.

Dr. George Atherton Spalding, of New York, died suddenly from cardiac disease, on Oct. 2. He was fifty-seven years of age, and was graduated from the College of Physicians and Surgeons, New York, in 1875. For a time, he was an assistant to the late Dr. John C. Dalton, the eminent professor of physiology in that institution, and later he served as interne at St. Luke's Hospital. Dr. Spalding was one of the most prominent physicians in the upper section of the Borough of Manhattan, and for ten years he had been an attending physician to St. Luke's.

Dr. John C. Beekman, of New York, died at Atlantic City, N. J., on Sept. 28, at the age of forty-eight years. He was born in New York, and was graduated from the medical department of the University of that city in 1882. At the time of his death, he was one of the consulting staff of the Harlem Hospital.

BOOKS AND PAMPHLETS RECEIVED.

A Manual of Otology. By Gorham Bacon, A.B., M.D. With an Introductory Chapter by Clarence John Blake, M.D. Fourth edition, revised and enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1906.

A Case of Narcolepsy, from a Specific Infection Transmitted through Five Generations. By Albert N. Blodgett, M.D. Reprint.

Clinical Manifestations of the Toxemia of Pregnancy. By J. Clifton Edgar, M.D. Reprint.

Hepatic Insufficiency in Obstetric Practice. By J. Clifton Edgar, M.D. Reprint.

The Value of Climatotherapy in Tuberculosis. By Guy Hinsdale, A.M., M.D. Reprint.

Arsenicum: A Challenging Study. By P. W. Shedd, M.D. Reprint.

Original Articles.

A SMALL FIBROMA OF THE ILEUM RESULTING IN OBSTRUCTION OF THE BOWEL, WITH A CONSIDERATION OF VARIOUS FORMS OF BENIGN INTESTINAL TUMORS.

BY JOHN W. DEWIS, M.D., BOSTON.

Benign tumors of the intestinal tract are probably less uncommon than generally supposed, and disturbances of the functions in this region due to the presence of intra-intestinal tumors are usually referred to other causes. To illustrate the course such cases may follow and the difficulty of determining the cause of the symptoms, and also because of the rarity of fibromata of the bowel, I wish to report the following case:

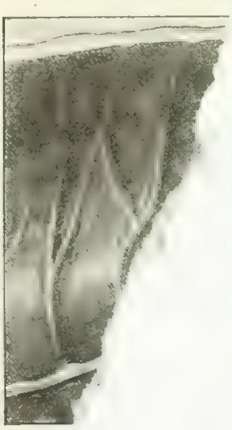
I was first consulted by Mrs. S., sixty-four years of age, in July, 1903, for vomiting and constipation; and the record states: "The constipation dates back ten years; for the past year it has been obstinate and persistent, and she has taken 'all kinds of pills' without relief; of late she has been dizzy; has had occasional vomiting spells, without pain and without relation to ingestion of food; the appetite has been ravenous; has bloated feeling; drinks much water with meals, but little tea; the urine is very scanty." Physical examination (in brief): Patient obese; radial arteriosclerosis moderate; tongue red and slightly fissured; a systolic murmur, loudest over the aortic orifice, no cardiac enlargement; abdomen somewhat pendulous and walls thick, no tenderness, and otherwise nothing abnormal. The patella reflex was present only on right side; the gait was unsteady. Urine: Acid, specific gravity 1019, very slight trace albumin, no sugar. The fasting stomach was empty and the boundaries normal, and no lesion found.

I next saw the patient on July 18 1905. The constipation for the past two years had been very obstinate, with little benefit from any treatment, and the vomiting spells had occurred every few weeks as before. During the past four months the patient had been under the constant care of a physician on account of an attack of left hemiplegia; in addition, for the past three weeks she had had osteopathic treatment, consisting chiefly of abdominal massage, which had relieved the constipation and distention.

On July 16, after a hearty boiled dinner at noon, she began at 3 P.M. to have severe attacks of abdominal pain and distress; at 5 P.M. she vomited a greater part of her dinner, with little relief. There were two or three movements of the bowels during the night, and several vomiting spells, the material having an offensive odor. In the morning the attending physician gave rectal injections of water, but found only a small quantity of feces. The attacks of pain and vomiting recurred at short intervals, and, at times, were very severe with symptoms of collapse. The stomach rejected everything, and there was considerable thirst.
Two more treatments of massage were given but in
creased the pain and distress. I saw the patient t
following day at 2 P.M. The face was pinched
pallid, and the skin cold and clammy; the pulse r
feeble and intermittent; and the temperature
normal. Every half hour or so there were fo
ejections of 2 or 3 oz. of vomitus, having the col
consistency of pea soup, alkaline reaction an
characteristic fecal odor. The breath was ver
sive. The abdomen was protuberant and eve
tympanitic, and there was moderate general te
which, with the thick abdominal walls, made

impossible. No flatus or feces passed the bowels, and high enemata of water returned clear. Toward morning of the 20th the attacks ceased, and soon after there was passage of flatus, followed by several loose movements of the bowels (guaiac test showed no blood in the feces). The patient soon became hungry and retained light nourishment, and on the 21st, the pulse, temperature and respiration were normal; there had been one or two quite natural movements, no vomiting, and there was little abdominal tenderness or tympany. It seemed that the cause of the obstruction had disappeared. Early on the morning of the 22d, however, the attacks of vomiting and abdominal pain returned, and death from shock came at 9 A.M.

Permission to open the abdomen was obtained only after the body had been embalmed. The bowels were collapsed as the result of punctures and were floating in embalming fluid and feces. The whole intestine had been greatly dilated, particularly toward the jejunum where it was certainly three times its natural size. The stomach was not appreciably enlarged. In the region of the ileocecal valve was an intussusception about two inches long, with a round movable body attached to the lower end. This mass, including an inch or two of ileum above and below the invaginated portion, was removed. The intussuscentio
reduced, and there was no n
bowel. Growing from the wa
intestine, perhaps about fou
valve, and lying over the ec
tion before reduction, was
red-brown in color, and sli
(Fig.1), from the fresh sp
of the tumor, and the ap



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eral Hospital, shows the tumor to be composed almost wholly of a coarse reticulum or fibrous tissue springing from the submucous layer. Many small and larger blood vessels are distributed throughout the fibrous tissue. At one margin of the section there is a small area of glandular tissue, evidently remains of the mucosa. The tumor is regarded as a fibroma.

It was impossible, perhaps, to have determined the cause of the obstruction in this case, and finding an intussusception associated with a tumor did not help the solution.

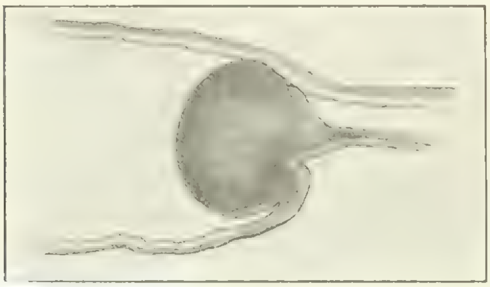

Fig. 2.

was short and easily
no noticeable adhesions
invaginated walls (the
course, interfered con-
oearance); so it was
.rence. Gibson,[1] in his
tussusception operated

first day; 14% were

t

after which reduction was easy until the cecum was reached, where very considerable difficulty was experienced, the walls of the bowel being very edematous and easily torn. The child recovered! A careful history was given in both of these cases and they appear trustworthy.

In our case, if there had been an invagination of the bowel existing from the first to the fourth day — about eighty hours — we would expect a spontaneous reduction had then occurred, as symptoms of obstruction were absent the two following days. This seems improbable, yet Langmaid[4] reports a case of spontaneous recovery in a child occurring about the third day. There was no doubt of a diagnosis in his case, as the intussusception could be felt in the descending colon and was visible at the anus. Doubtless this is unusual, as adhesions are generally considerable on the third and fourth days, and not easily overcome. Fitz[5] found a report of only one case cured by inflation or injection on the fourth day, and none later; but afterward Cheadle[6] reported a case of intussusception of six days, in a boy fourteen months old, cured after three inflations, and mentioned another case of four days' duration cured by the same means. Again, remissions of the symptoms do not necessitate disappearance of the intussusception, as instanced in Pilgrim's[7] case: A man, aged twenty-nine, was seized with an attack of acute intestinal obstruction, with symptoms which continued twenty-four hours, followed by a condition of marked improvement, with loose movements of the bowels lasting four days; on the fourth day, following a hearty meal, there was a renewal of the attack, and operation disclosed an intussusception of the colon which was with difficulty reduced.

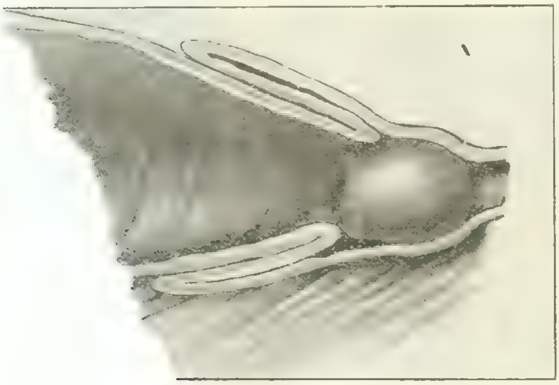

Fig. 3.

In addition to the absence of intestinal adhe-
ns in our case, there had been no discharge of
od or mucus, and no tenesmus. Treves[8]
es that blood in the stools is a "striking
ure," and that it exists in about 80% of cases
ute intussusception, and that "tenesmus is
king" and, "usually, an early symptom,"
h less often in the pure enteric forms; Fitz[9]
the former symptoms mentioned in 60%
cases collected by him.

The above statistics seem to favor the conclusion that in this case the acute obstruction had not been induced by an invaginated bowel, though the exceptions show that, even with this history, it was possible for an intussusception to have existed throughout the attack. The appearance of the bowel, however, practically excluded this possibility, for the fresh specimen (Fig. 1), after the intussusception had been reduced, showed that the widened lumen of the intestine appeared immediately above the tumor. This condition, if due to the intussusception, would have occurred at a point above the tumor, equal to the length of the invaginated bowel. The only position possible for an intussusception, to produce the dilatation which existed, would have been just below the tumor; but this could not have occurred here.

It seems certain, therefore, that the tumor alone had caused the obstruction and in some such way as the following: In bringing the edges of the bowel together the tumor assumed the position which is shown in Fig. 2. This could produce a valvelike obstruction to the intestinal contents, which obstruction would be relieved only when there was sufficient distention of the bowel above the tumor to force it away from the opposite wall. This action of the tumor could also account for the attacks of vomiting and severe constipation which had existed for a long time.

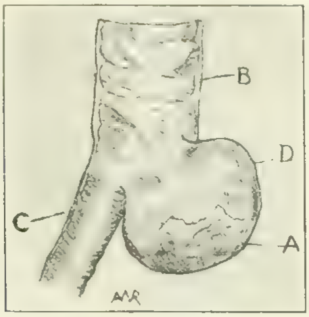

Fig 4. Preparation No. 1266 in Hunter's Museum (after Nélaton: Élémens de Pathologie Chirurgicale, Tome iv. Paris, 1857, p. 460, Fig. 41). A, ulcerated mucosa at apex of tumor; B very dilated portion of bowel above the tumor; C, narrowed lumen of intestine below tumor.

Nélaton [10] gives the sketch of a specimen (Fig. 4) in Hunter's Museum, which is very similar to ours (Fig. 2), the chief difference being in this tumor having a distinct pedicle, allowing it to hang downward, while in our case the tumor had a constricted base and protruded upward. Figs. 5 and 6 represent other forms in which we may get obstruction from these benign tumors.

Fenger's [11] case is an illustration of how a small tumor of itself may cause marked symptoms of acute obstruction, and without producing dilatation of the bowel above it. It was probably at that time the only case on record, May, 1893, in which a benign tumor of the small intestines, unassociated with intussusception, had been operated upon. The following is an abstract: The patient, a man aged seventy-five, had had for a year past attacks of constipation, but not attended by vomiting; then followed six weeks of slight movements of the bowels, anorexia, nausea after eating, occasionally fecal vomiting an hour or two after eating, and finally daily vomiting and short paroxysmal pains of abdomen, increasing in frequency. There was no pus nor blood in the stools. No tumor was felt on palpating the abdomen either before or during anesthesia. Exploratory operation was decided upon with the expectation of finding cancer, but as the loops of small intestines which came to view were neither dilated nor injected, and nothing abnormal found in rectum or colon, the author thought that perhaps a false diagnosis had been made, the condition being due to chronic senile constipation; but on examining the small intestines more thoroughly, a round tumor, the size of a walnut, was discovered projecting from the inner wall of the ileum, the portion not stated. The intestinal wall over the tumor was thickened and movable, but the tumor could not be dislodged. The base was 1.5 cm. in diameter and covered with serosa, but not with the smooth muscularis; it was also depressed and slightly lobated and situated on the side of the loop half an inch from the mesenteric attachment. The tumor was removed by a "T-shaped" intestinal incision, and the patient made an uneventful recovery and was well sixteen months later. The tumor measured 4.5 cm. long by 2.8 cm. broad, was cylindrical, smooth and covered by normal mucosa, except the distal end where it was deep brown, necrosed and injected as in typhoid ulcer. "The base of the tumor," he says, "is situated on the muscularis from which it probably originated." The cut surface was smooth, gray, tough, moist, a fibromyoma. Microscopical examination of sections were made and a very carefully detailed description given. The chief points were that the mucous membrane was normal, the muscularis mucosa hypertrophied, the deep or circular layer of muscular fibers, where the tumor commences, spread out into bundles separated by fibrous tissue, and the longitudinal outer layer of muscular fibers was normal and continuous over the circular layer.

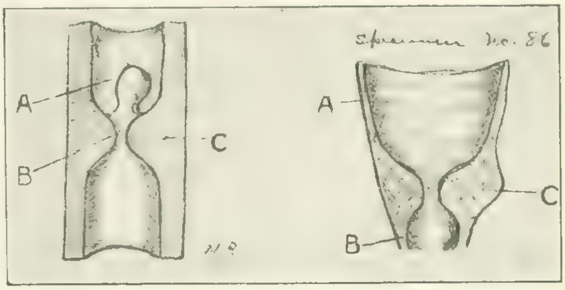

Fig. 5. Drawing after Nélaton: Élémens de Pathologie Chirurgicale, Tome iv. Paris, 1857, p. 641. A, Polypoid myomatous tumor the size of a hazel nut. B, narrowed lumen of bowel, the tumor above acting as a valve; C, circular muscular hypertrophy.

Fig. 6. Drawing after Nélaton: *Ibid.*, p. 463. Specimen from museum of St. Thomas' Hospital. A, dilated lumen of bowel; B, inferior narrowed portion; C, hypertrophied cellular tissue of intestine.

The substance of the tumor proper was a very vascular connective tissue, consisting of small connective tissue cells; and in many places there were tracts of myxomatous tissue with branched and finely fibrillated cells, and very little homogeneous intercellular substance. "The anatomical character of the tumor," the author states, "would thus be designated as a mixed form of the connective tissue type: a myo-myxo-fibroma."

Fibromata of the intestinal wall, protruding into the lumen and unqualified by such terms as adeno-, myo- and myxo-, are exceedingly rare, and I have been able to find only three such cases mentioned in the literature, and none occurring in the small bowel. Two of these were reported by Heurtaux[12] and the other cited by him from Jansen (the original of Jansen's article I have not been able to obtain). The following is a résumé:

Case 1. (Reported by Jansen,[13] April, 1886.) A woman, age thirty-five. She had had grave digestive troubles and was extremely cachectic. Operation for a tumor the size of the fist, mobile and hard, situated in the descending colon; resection of the mass and complete recovery. Examination disclosed a fibroma.

Case II. (Reported by Heurtaux, Soc. Anat. de Nantes, 1887.) A woman, aged thirty-two. A fibroma the size of the index finger, ovoid in shape and attached by a pedicle the size of a penhandle, just above the anal sphincter. Operation and cure. Histological examination (by M. le Pr. A. Malherbe) showed the tumor to be a fibroma.

Case III. (Reported by Heurtaux, Soc. Anat. de Nantes, 1889.) A woman, aged forty-four. At first confinement in 1884, preceding the expulsion of the child's head, a tumor the size of an egg was expressed through the rectum and replaced by the midwife. This occurred at two later confinements, as well as at various menstrual periods. Operation in 1889, when the tumor was the size of a small apple and had a short pedicle, which was severed and the cautery applied; recovery. The tumor, on section, was hard and had a gray-white color. Designation: a fibroma. There was no evidence of myomatous or carcinomatous structure. (Examination by Malherbe.)

These cases of fibromata from Heurtaux, with the case reported above, give the following group as to location:

Fibromata

Location.	No.	Sex	Age	
Lower ileum (intussusception),	1	Woman	64	
Ileum (myxo-fibroma),	1			Gossage.
Lower colon,	1	Woman	35	Jansen.
Rectum,	2	Woman Woman	32 44	Heurtaux

Various textbooks on pathology remark that fibrous tumors occur in the gastro-intestinal tract, but instances of fibromata are not given. Rokitansky[14] states that fibroid tissue may occur in the sub-mucous tissue, as in the stomach and the esophagus. Förster[15] states that these tumors are rare, and that he had not found an instance of such protruding into the lumen of the bowel, in his own experience, and in the available literature he had sought in vain for them. Mr. Greig Smith[16] states: "I have operated in a case where a fibrous tumor was the apex of the intussusception, a double one through the ileocecal valve. Reduction was possible only after resection of the growth; the patient recovered." I can find no further mention of the case.

Gossage[17] reports a myxo-fibroma of the small intestine associated with an intussusception 6 in. long, situated 21 in. above the ileocecal valve. The tumor was cylindrical and measured 2¾ in. by 1¼ in. Position of tumor in the invagination not given. Hewitt[18] also describes two cases of fibrous tumors which are of particular interest apart from their structure. The first, a patient of Dr. Ogier Ward, was a woman thirty-four years old who died on the seventh day of an extensive invagination of the ileum; below the intussusception was a fibrous tumor of the size and shape of a pear, attached by a long pedicle to the wall of the lower ileum. The other was a case of Dr. Nairne[19]; a man forty-six years of age who had suffered with diarrhea for months. He was admitted to the hospital with symptoms of peritonitis and emaciation, and died on the seventeenth day. An invagination of the ileum was found, to which was attached a pyriform polyp, 2¾ in. long by 1½ in. wide, with a pedicle the size of the middle finger, 1½ in. long.

Angiomata of the bowels are exceedingly rare, and I have been able to find the reports of only three cases, though textbooks as far back as Rokitansky's[20] mention them as occurring in the intestinal tract, and this author states that they may appear in the form of polypi as a result of catarrh, and especially in the large intestine and in the rectum. The case mentioned by Marsh[21] was a girl aged ten, who since the age of two had suffered from repeated hemorrhage from the bowels. A nevoid growth was seen in the rectum completely surrounding the bowel. Cautery relieved the symptoms but did not cure. Barker's[22] case was that of a man aged forty-five. When first seen he was a specimen of "rude health." Since boyhood, when straining at stool, he frequently passed blood; but sometimes he did not notice this for three or four years. His first severe symptom appeared about a year previous to his last attack, when he was taken with a severe diarrhea and great loss of blood. The rectum was marked by smooth folds, mottled with purple. On these folds were three shallow ulcers whence blood flowed freely. Remedies were futile. Post mortem: Wall of rectum much thickened for 4½ in. of its lower extent by a nevoid growth. Microscopic examination: A cavernous nevus involving both the mucous and submucous tissue. A careful drawing of the specimen is shown. Dilbet's[23] case, quoted by Heurtaux (I have been unable to obtain original report) was that of a woman, aged twenty-one. There was a circular cavernous angioma in the small intestine which had caused symptoms of chronic intestinal obstruction. The tumor was of the form and thickness of a ferrule and 3 cm. in height. Operation, death. Microscopical examination: A cavernous angioma.

Adenomata of the intestinal tract are not uncommon occurrences, but are seldom found in the small intestine. I have been able to find instances of 124 cases. One hundred and seventeen of these cases have already been collected and classified by Smoler [24] in his admirable paper on adenomata of the intestinal tract, and 9 of these cases were his personal observations. To these I am able to add 7 cases as follows: The case of "papillary" adenoma of the sigmoid flexure reported by de Sante,[25] a "fibro-papilloma" of the jejunum by Sandberg,[26] a fibro-adenoma of the ileum by Watson,[27] one of "adenoid growth" of the sigmoid flexure by Bishop,[28] another of fibro-adenoma of the duodenum originating from the pyloris, by Thompson,[29] a case by Pozzi,[30] of adenoma of the rectum the size of a small almond, and another by Trélat [31] of adenoma of the rectum the size of a fist, 7 cm. by 8 cm., with a pedicle. Bryant [32] also reports two cases of "papillomatous growths" with intussusception in each, — one a woman, eighty-four years of age (case of Dr. Mackern [32]) and the other a woman of fifty years of age (case of Dr. Richardson [33]). In both cases there was an intussusception with a papillomatous growth attached to the apex and protruding from the anus. Chambers [34] reports another case of probable papilloma in a woman forty-one years of age, attached to the wall of the small intestine three inches from the ileocecal valve. Harrington [35] reports a case of malignant adenoma the size of a lemon, situated in the colon at the hepatic flexure causing obstruction. Operation, recovery.

Adenomata occurs at all ages: Lyot [36] reports the case of a child five months old suddenly taken sick with colic and passing of blood per rectum. The autopsy revealed an ileo-colic invagination 20 cm. long, also an adenoma of the ascending colon, which was about the size of a half walnut shell. Allingham [37] reports a polyp the size of a fetus head in the rectum of a man seventy-three years of age. The tumor was a non-malignant hyperplasia of the mucous membrane.

Myomata of pure type occurring in the intestinal tract are very rare, being usually of the mixed fibrous type. Of the various pure and mixed types I have found references of forty cases. The subject has been exhaustively considered by Steiner [38] and he has given nearly complete citations from the reports of such cases. The subject was later briefly reviewed by Heurtaux,[39] quoting two other reports; one by Tédenat,[40] the case, a man aged forty-six, in whom were found two myomata of the rectum; and another by MacCosh [41] (misquoted MacCosch), a man aged thirty-four. In the latter case the tumor was the size and shape of a cocoanut, filled the hollow of the sacrum and was retrorectal. I have been able to find but two other cases — those of Lexer [42] and Estes. In Lexer's case, a man thirty-one years old, was found a large, flattened, retrorectal leiofibromyoma, measuring 15 cm. from above downward, and 10 cm. in breadth. Another of this type was reported by Berg.[43] In addition to the above, Estes [44] has reported a case of enormous and symmetrical hyperplasia of the mucous coat of the sigmoid, forming a well-marked tumor, and resulting in stenosis. From description this may have been a similar case to that represented by Fig. 5.

Myomata of the bowel may be separated into two classes, the external and internal or intra-intestinal. In the above list of 40 cases there were, in the first group, tumors growing from the outside of the intestinal wall, usually by a pedicle, 12 cases, including those of the sigmoid; of the second group, or intra-intestinal, there were 19 cases. In the rectum there were 5 internal (2 in one case) and 6 external varieties; 3 of the latter grew from the rear of the bowel pushing it forward (thus classified by Lexer). In Steiner's collection, 2 cases were of the myosarcoma variety, and in 7 there had been no histological examination. Steiner also collected 21 myomata and myosarcomata of the stomach, 8 internal and 11 external forms.

Myomata probably occur at all ages and, possibly, may be congenital. Holländer's [45] case was a man aged seventy-five. Operation disclosed an invagination of the colon 15 cm. long, in which there was a myoma the size of a prune; recovery. Also in Bryant's case of papilloma the age was eighty-four. König's [46] case was a girl, aged seventeen, in which there was a polypoid tumor of the rectum the size of a pigeon's egg. Lockwood's [47] case was a woman over thirty years of age. A globular polyp, three quarters of an inch in diameter, was found attached by a short pedicle to the wall of the ileum, 2½ ft. above the cecum. The tumor was composed of muscular and fibrous tissue. In its center was a calcareous deposit, and this occurrence, together with the situation of the tumor, being near the vitelline duct, suggested to the author that the tumor may have been congenital in origin. Situated below this polyp, but in no way connected with it, was an intussusception 5 in. long, and the author believed that the invagination had been caused by increased peristalsis induced by the tumor.

Résumé of location:

Small intestine, 17: Duodenum, 3; jejunum, 2; ileum, 11; undefined, 1. Large intestine, 9: Vermiform appendix, 1; cecum, 3; colon, 4; sigmoid, 1. Intestine (undefined), 4. Rectum, 10.

There were 9 cases of invagination and 2 cases of spontaneous expulsion of the tumor, — Pillizari's [48] case of a tumor from the region of the ileocecal valve and Heurtaux's [49] case of tumor of the rectum.

Lipomata. Intestinal lipomata, according to the list we have obtained, occur next in frequency to adenomata, and I have found in the literature mention of 44 cases. The subject has been reviewed by both Hiller [50] and Ward,[51] 35 cases having been collected by the latter. In addition to these I have found the following 9 cases:

Zum-Busch [52] reported a case of ileocecal invagination caused originally, so the author believed, by Meckel's diverticulum, at the apex of which was a lipoma; operation with recovery. St. Thomas's Hospital Report[53] gives the account of an operation for a lipoma of the sigmoid, — recovery; and another report by Stabb[54] of a submucous lipoma of the small intestine, 30 in. from the cecum; Heurtaux[55] reports a lipoma, 5.7 cm. by 4.8 cm., in the upper portion of the descending colon, associated with invagination, — operation and recovery. Voss[56] (Quenu and Hartmann: Chirurg. du Rectum) is quoted as having described a pedunculated, nodular lipoma of the rectum associated with prolapse; Ray[57] reports a submucous polypoid lipoma of the sigmoid colon, situated at the apex of an intussusception,— operation, recovery; Turner[58] cites a case of a polypoid fatty tumor the size of a cherry, covered with mucosa and situated just within the neck of the invagination,— an old museum specimen with no history. Richardson[59] reports a case of lipoma of the cecum, the size of a Bartlett pear, one inch from the opening of the ileum, causing an ileocecal invagination which reached to the sigmoid; operation on the third day, reduction of the intussusception difficult, and death from shock on the third day (case of a man, aged fifty-two); Le Garde[60] reports the case of a man, aged sixty-five, on whom he operated for a large lipoma situated high in the rectum. The tumor weighed 12 dr. and had a pedicle at least 8 in. long.

The situation of these 44 cases was as follows: Duodenum, 6; jejunum, 4; ileum, 7; cecum, 2; colon, 5; sigmoid, 5; rectum, 6; small intestine, 2; intestine, 1; unknown (probably intestine), 6.*

The ages in these cases range from eighteen to eighty-three years. Considering 38 of the cases as intestinal, we found invagination in 16 of them, nearly half. Spontaneous expulsion of the tumor occurred in 9 of the cases, or one fifth of the whole number excluding the case in the esophagus. In Ninaus'[61] case the tumor was expelled with the invaginated bowel which had sloughed off. The case was a man thirty-two years of age who had suffered for a month with cramp-like pains in the region of the cecum, distension and inability to move the bowels. Shortly after eating some meal-pap he was seized with a severe pain in the belly. On the following day there was vomiting which became feculent, and on the fifth day vomiting of large amounts occurred thirty times. On the eighth day blood appeared in the stool, followed by pus mixed with blood on the tenth, after which time the patient began to improve, though some pain continued in the cecal region with five to seven foul-smelling stools daily. On the twentieth day after the beginning of the attack, the patient passed a soft, flabby piece of small intestine, 120 cm. long by 10 to 12 cm. broad. To the inner side of the bowel, and arising from the submucous tissue, was attached a polypoid lipoma which in the author's opinion had caused the intussusception. After a year, the patient had another severe attack of colicky pain in the cecal region and constipation. There was resistance over the cecal region. After this the patient was never quite well.

Another remarkable case was that described by D'Arcy Power.[62] A woman, aged thirty-two, eighteen days after the onset of severe intestinal obstruction, passed 40 in. of small bowel, to the upper end of which was attached a polypus. The woman lived to the age of fifty-seven.

RÉSUMÉ.

	NO			NO.
Angiomata of the intestinal tract	3	(rectum 2)	intussceptions	0
Fibromata " " "	5	(" 2)	"	2
Myomata " " "	40	(" 10)	"	9
Lipomata " " "	44	(" 6)	"	16
Adenomata* " " "	127	(" 81)	"	10
Total	219	101		37

* Including papillomatous tumors.

Situated as follows:

	Angiomata.	Fibromata.	Myomata.	Lipomata.	Adenomata.	Total.	Leichtenstern's Table[63] of Intestinal Polypi.
Duodenum,	0	0	3	6	4	13	2
Jejunum,	0	0	2	4	3	9	5
Ileum,	0	2	11	7	7	27	30
Vermiform appendix,	0	0	1	0	0	1	2
Cecum,	0	0	3	2	2	7	4
Colon (including sigmoid,)	0	1	5	10	30	46	10
Rectum,	2	2	10	6	81	101	75
Small intestine,	1	–	1	2	–	4	
Intestine (undefined),	–		4	7	–	11	–
Total	3	5	40	44	127	219	128

This list is considerably short of the number of nonmalignant tumors of the intestine reported in the literature, as many cases of small intestinal tumors reported under such unqualified heads as "polypus" of the bowel; "multiple polypi," or "small tumor" were found, but not included in the above.

The proportion of rectal cases in Leichtenstern's[63] collection is much greater than in ours, but many intestinal cases are now diagnosed through the aid of surgery that were formerly undetermined; besides, rectal adenomata are comparatively common and probably not so generally reported as when found in other portions of the bowel; his percentage of cases occurring in the ileum, however, is greater than in our list, which may be accounted for by his including in his list all forms of intestinal polypi.

In the above list only 11% of the adenomata appear in the small intestine, 25.2% in the large intestine, while 63.8% appear in the rectum; 48.1% of all the other forms combined occur in the small intestine, 27.1% in the large intestine and only 24.8% in the rectum.

Adenomata* are frequently multiple, and may appear scattered throughout the entire intestinal tract in a single case, as shown in Petrow's[64] case; a girl twenty years old, after a two weeks' sickness of diarrhea and vomiting, was operated upon and numerous adenomata were found throughout the whole small and large intestine and, in addition, an intussusception in the jejunum and another in the ileum. This is rare with the other forms, — only one case was noted among the myomata, and one (that of Bauer[65]) among the lipomata; Treves,[66] however, refers to a specimen of multiple lipomata in the London Hospital Museum.

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* I have found mention of only three other cases of submucous lipomata, all above the bowel:

Virchow (Die krankhaften Geschwülste, Berlin, 1863, Bd. l, 372) describes a unilobular submucous lipoma of the stomach, near the pylorus and the size of a hazel nut, and gives a natural size drawing (praparat No. 85, vom jahr 1859). He also states that

Marjolin (Cruveilhier l. c. p. 312) saw a lipoma resembling a ranula in the bottom of the mouth."

Meckle (Handbuch der path. Anat, Leipzig, 1818, Bd. ii, 124) states that lipomata very seldom appear in the mucous membrane, yet he had several cases before him, one being a lipoma in the lower part of the esophagus. The other lipomata mentioned by him are included in the above list.

* Adenomata being occasionally multiple, and where but one of the locations may be mentioned, it is impossible to make a table which is wholly correct, and this is only done in the above case for the sake of comparison.

Intussusception, exclusive of the rectal cases, occurred in the following percentages: In adenomata, 21.8% of the cases; in lipomata, 42.1%; in myomata, 30%; but in myomata, exclusive of the 12 external forms, 50%.* The tumor is usually situated at the apex of the invaginated mass, but is occasionally attached to other portions of it. The tumor may also appear above the intussusception, as occurred in Lockwood's case, or below it, as instanced in Hewitt and Ward's case.

Spontaneous expulsion of the tumor seems to be characteristic of lipomata, occurring in 20% of the cases, but is rare in the other forms, being noted in one case of myoma in the region of the ileocecal valve (Pillizari) and in a case of myoma of the rectum (Heurtaux).

The symptoms produced by these benign intestinal tumors are those of obstruction, or such as may arise from irritation of the intestinal mucosa due to their presence — diarrhea is at times a marked symptom, as noted in Nairne's case already quoted. In some cases their existence is not manifested by any appreciable symptoms, or the tumor may be too small to cause symptoms. There may be partial or complete obstruction, with symptoms of ileus, even though the tumor be considerably smaller than the lumen of the bowel. The symptoms may extend over a period of years, — in our case, ten years. Blood in the stools may occur in any of the forms; none, however, was noted in the small group of fibromata. In some cases the patients are anemic or cachectic, and simulate a condition of malignancy, as in Fenger's case.

Benign intra-intestinal tumors occur with sufficient frequency to require consideration in all obscure derangements of the intestinal functions, and particularly if accompanied by a history of intractable constipation, attacks of colic, or vomiting, not the result of gastric affections. In the majority of cases, however, and except where the tumor may be felt (as in Watson's case, cited above), it would be impossible to diagnose intestinal disturbances due to these neoplasms from other possible causes.

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* Intussusception was not noted in the external varieties, though it seems reasonable to suppose we might have retrograde intussusception.

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INTERNATIONAL TRACHOMA PRIZE. As already mentioned, the Hungarian government has offered a prize of $250 for the best work on the etiology of trachoma offered in competition before Dec. 31, 1908. The work can be in English, French, German or Hungarian, and the prize will be awarded at a general session of the Fifteenth International Medical Congress at Budapest, in September, 1909. Published works are eligible if they do not appear before 1907 or 1908. Address Budapest 1, Vár, Belugyministerium. *Jour. Am. Med. Asso.*

ON THE BIER TREATMENT OF INFECTIONS AND SEPTIC WOUNDS OF THE EXTREMITIES.

BY E. A. CODMAN, M.D., BOSTON.

During the last four months I have had the opportunity in the Out-Patient Department at the Massachusetts General Hospital to make a fairly extensive, though I must admit, somewhat superficial, test of the Bier treatment. During June, July, August and September I have been in charge of the male surgical room, and a goodly proportion of the average daily attendance have been cases in which this method of treatment has been applicable. The following brief remarks are in no sense to be taken for a scientific paper; I intend them for mere personal statements of my experience and resulting opinions. My opportunity at the hospital has been taken advantage of to try this treatment, and it seemed to me that perhaps some of the readers of the Journal might be interested to know what I think of it. It has seemed to me quite useless to present a long series of cases with detailed reports, for such cases present such an infinite variation in degree of severity and in individual idiosyncrasy that such reports would confuse rather than aid the reader. I suppose that every surgeon, as his experience grows, imagines that he can take better and better care of what we call " septic fingers " and " palmar abscesses." Certainly, during the last six services at the hospital I believe that my own results have been better and better, and it is possible that the excellent results this year have been due to my experience in the years which have gone before; but I frankly confess that I consider them due to the application of the Bier treatment.

At our own hospital ten years ago the ideal treatment of a septic finger, for instance, was to make a free surgical incision, down to the tendon or bone. Sometimes the finger was laid open as if split to broil and the tendon left bare in the middle. This was a period of reaction from the despised old-fashioned "medical incision." The result of the " split to broil " method was invariably loss of a portion of the tendon and frequently amputation of the finger. On the other hand, it was supposed that safety from general infection was secured; perhaps it was, but not infrequently while the tendon was sloughing out, the process again extended up the fiber, a new sheath became infected and the palm and perhaps the forearm had to be split.

During recent years the treatment of these cases has been greatly affected by the example of Dr. C. A. Porter. Instead of the old-fashioned, blind, splitting operation in which the tendon was exposed willy nilly, Dr. Porter has applied a tourniquet, and then with great care dissected down to the seat of the pus unhampered by the bleeding. By this method it is frequently found that the pus lies not in the sheath itself, but in the fatty and areolar tissue adjacent to it, the tendon, quite unimpaired, although, perhaps, lying in the closest proximity to necrotic fascia. He found that a careful excision of the necrotic part frequently saved the tendon if it were unmolested and not disturbed by gauze packing.

Thus his method gave safety from general infection by free drainage and yet minismized the damage to the tendon.

Now comes the Bier treatment. It is claimed that by this method the danger of general infection is lessened and at the same time the expulsion of necrotic tissue is aided. In other words it has the advantage over excision of the necrotic portions that it leaves all tissue capable of living, some of which the gross fingers of the surgeon must remove in his effort to excise the dead portions, and further it does not remove what inflammatory wall had already formed.

Suppose a case of septic finger: you fear two main things, — extension of the sepsis and future impairment of function. The Bier treatment claims to lessen both, — it prevents extension by mechanical congestion of the adjacent tissues and by increased pressure in the tissues it tends to throw off only the absolutely necrotic portions.

We all know that if we dare leave felons and boils alone that if they do not extend they heal with less damage than if we use a knife on them. If we knew they would not extend our only reasons for opening them would be to relieve pain or to hasten recovery. The " medical incision " suffices for the former and the hope of a more perfect recovery suffices for the latter.

A medical incision is by no means contraindicated in the Bier treatment, and in my experience the recovery is more rapid than by incision and curettage.

We have applied the treatment in the following manner: When an old (*i. e.*, one who has been seen before) patient arrives in the morning his dressing is taken down and the wound examined and its condition recorded. A rubber strap two inches wide and provided with a buckle is applied about his arm or leg well above the lesion. This is drawn as tight as possible without stopping the pulse. The wound is covered with moist corrosive gauze and the patient sits down and waits an hour. The part is looked at from time to time to be sure that the circulation is not too greatly checked. At the end of the hour a moist dressing and splint is applied. The wound is not as a rule packed or drained. The same routine is followed each day.

After the first few minutes the pain is inconsiderable, and if pain has been present before it is usually relieved. Patients not infrequently bring a book or a newspaper to read during the hour. While the tourniquet is on the wound secretes more profusely, usually serum with particles of pus and necrotic tissue. In several cases after the treatment it was noticed that adjacent pockets had broken into the main one or on the surface. If slough presented at the surface of the wound we have not hesitated to pick it out, but on the whole delving and probing in the wound have been discouraged.

The nature of the cases in which we have used the treatment has been various. Almost all the cases of acute suppuration from whatever cause on the extremities has had the Bier treatment in addition to the usual dressings.

In some of the cases a fairly radical operation by Dr. Porter's method has been done, but in most merely a "medical incision." In a few, which I should in other years have incised, I have made no incision and the process has disappeared. On the whole, the cases which have done the best have been frank suppurations of the staphylococcus type while the streptococcus or erysipeloid type has been less markedly affected. "Fish fingers" have not been particularly satisfactory as they get well in time with no treatment.

In a number of cases it has been interesting to see that the affected finger remains stiff and swollen and edematous looking for many days after the treatment is stopped, but eventually normal motion has returned and the swelling has subsided. I imagine that in these cases there is a certain amount of gumming of the tendon sheaths with plastic lymph, which is gradually absorbed.

The Bier treatment in these cases seems to me to have many points of analogy with the Ochsner treatment of appendicitis. It seems to me that both aim to assist nature to build a barrier about the necrotic focus, and aim when this barrier is built to remove the focus. The application of either requires the judgment which comes of experience. As the Ochsner treatment has done much to aid pre- and post-operative treatment, I think the same will be the case with the Bier treatment. Evisceration and finger splitting belong to the same surgical era.

The comparison may also be carried to the question of pain. The patient undergoing Ochsner's treatment certainly is more comfortable than when his walling off was prevented with cathartics and the patient with Bier treatment is more comfortable than when his lymphatic spaces were opened up by the knife and curette. Perhaps in both we are again swinging to the old-fashioned medical treatment, but I am personally satisfied that the septic wounds of the extremities in my clinic this summer have done better in point of severity, pain and post-operative deformity than in previous years.

I must add, too, that my application of the treatment has been crude and given in a routine manner. It is not unlikely that varying the degree of pressure of the strap and the time of its application may still further improve its efficiency.

Finally, let me say that I have been very reluctant to admit the value of this treatment and began it with a strong prejudice against it. Nevertheless, I do not hesitate to indorse it to those who have not had as good an opportunity to try it. I believe it is safer in the hands of the inexperienced than an attempt at a radical operation, and that it is a valuable adjunct to the "medical incision," and *vice versa*.

Clinical Department.

A DECEIVING CASE OF HEAD INJURY.

BY BENJAMIN T. BURLEY, M.D., WORCESTER, MASS.,
Visiting Neurologist to Worcester City Hospital and Visiting Physician to Neurological Department, Memorial Hospital, Worcester, Mass.

While leaning back from his car to adjust a trolley pole a conductor of the Worcester Consolidated Street Railway lost his balance and fell to the street. He apparently struck on his head but was only slightly dazed and was brought on his car to the center of the city. He told the inspector correctly about his change and walked a short distance to the office of the railway surgeon. The surgeon found nothing wrong with his head, concluded he was not seriously hurt and sent him home in an automobile. The conductor was assisted into his house and lay down on a couch. He was not inclined to talk much to his wife who was in the room and, after a time, he appeared to her to be dropping off to sleep. She did not attempt to rouse him until nearly three hours later when she noticed him breathing more heavily, with an occasional groaning noise. At the same time she noticed some convulsive movements of his body and limbs, but could not remember afterward their localization.

Finding it impossible to rouse him she sent for the surgeon who had seen him three or four hours previous. Before the surgeon's arrival the patient's breathing became more stertorous and he is said to have had two or three general convulsions. After examination the surgeon ordered the patient's removal to the Worcester City Hospital, three miles distant, and sent a message for me to meet him there in consultation.

My examination was made about six hours after the accident and I found the patient, who was about twenty-five years old, in an extremely critical condition. He lay on the bed in deep coma with a flush more evident over the upper part of his body. Every palpable muscle was in a state of tonic spasm, occasionally varied with clonic movements, especially in the arms and hands, of equal strength and frequency on both sides. Both hands were in extreme flexion and pressed into the abdomen. Both feet were in plantar flexion. There was involuntary passage of urine.

The respiration was striking. Though it was in general of the Cheyne-Stokes type, every deep respiration was with extreme stertor and, without intermediate stage, the respiration would cease entirely for several seconds so that once the patient seemed to be at his end.

The pulse was intermittent and irregular with the full beats slow (about 50) and tense at the wrist.

Examination of the head through the hair failed to disclose any bruise or sign of fracture of the skull. The eyes were fixed, the lids partly closed and the conjunctivæ somewhat injected but without ecchymosis in the subconjunctival space. Neither pupil reacted at all to light. The right pupil was dilated more than the left. The right eye was also everted.

The usual deep reflex tests were practically impossible to obtain on account of the tonic spasms of all muscles. The Babinski reflex, however, was present and exactly equal on both sides. All tests in any way subjective were, of course, unobtainable.

The "lucid interval" after injury, followed later by signs of extreme cerebral pressure, made me confident we were dealing with a large extradural hemorrhage; but the absolute lack of observation of the symptoms of onset, the absence of external marks of injury and the equality of most of the signs on both sides of the body presented unusual difficulty in the way of localization. Banking, however, on the greater degree of the third nerve paralysis on the right as being due to direct pressure of a lesion on that side and realizing that further observation and delay would cost the patient his life, I advised the following operation to be performed without an anesthetic:

The head being shaven, a horse-shoe shaped skin incision was made starting above and behind the right ear and ending 3 cm. above and behind the right eyebrow.

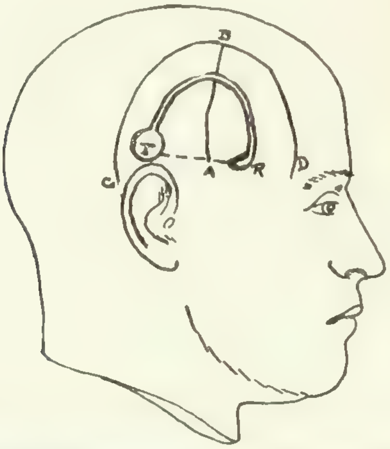

Diagram of field of operation, showing skin incision C–D; trephine opening and rongeur cut for bone flap T–R, and crack through skull crossing middle meningeal artery near A, A–B.

A small trephine opening was made through the posterior squamous portion of the temporal bone and from this a rongeur cut was made upward, forward and then downward, forming a smaller horse-shoe. Partly clotted blood was evident through the trephine opening and when the temporal muscle was dissected back a clean crack could be seen extending vertically through the anterior portions of the parietal and temporal bones in the region of the middle meningeal artery. On laying down the bone flap by breaking across at its base nothing but oozing blood clot came to view. This was scooped out by the fingers, with instant relief to the patient's respiration and marked lessening of the pulse tension. The clotted mass was over an inch thick at its center over the posterior frontal convolutions and, tapering, spread out over the whole frontal and the anterior temporal and parietal regions of the right hemisphere.

Palpated through the dura the brain felt abnormally soft where the greatest pressure had been. The dura was left intact. The hemorrhage was fairly readily controlled by packing gauze. The bone-flap, except a part which became broken off in the hurried opening, was replaced, a wick left near the trephine opening and the skin-flap replaced with silkworm-gut sutures.

It is interesting to note that the patient had felt nothing of the operation until the last two skin sutures were applied, which provoked a low muffled groan.

During the night the patient was restless, requiring some morphia, and his pulse ran as high as 130 but it was less irregular. The head dressing was once reinforced. The patient slept most of the next day, took some liquids and was partly conscious when roused. On examination at this time I found that he had no paralysis of any muscle. Sphincter control and the normal reflexes had returned. The pupils were now equal and reacted normally to light. The Babinski reflex was now absent.

Thereafter the patient gradually became clear mentally and less somnolent. The packing was removed on the second day and by the eighth day the last wick and stitches were out. After making an uninterrupted recovery the patient left the hospital eighteen days after the operation in excellent condition.

Questioned as to his memory after the accident, it was found that the patient was fairly clear as to his actions until about when he left the surgeon's office but remembered no more of his trip home than getting in and out of the automobile. After that he had complete amnesia.

I am indebted to Dr. L. F. Woodward for calling me into the case and for his skill in carrying out the operation.

Finally, this case illustrates the advantage of the bone-flap method of exploration over the simple trephine opening. Too often after the trephine button is removed the true condition of things beneath is not revealed unless considerable enlargement is made. Thus a large and often ragged opening is left. Where there is good reason for making an exploration and the field is selected, it is a rapid operation to make a small opening either with trephine or burrs and from that make a horse-shoe channel with the proper rongeur. Then the flap may be turned back and allow free opportunity to work inside of the opening and, when replaced, the skull retains its contour and protective strength. This is especially feasible where, as in this case, the temporal muscle and fascia can be utilized to prevent complete breaking off of the flap. It should be planned not to cut off a good blood supply to the flap.

Within a year I have six times advised this mode of operation for brain tumor, hemorrhage or epilepsy, and in no case has there been any great degree of shock or alarming symptoms attending the operation.

* * *

A CASE OF "ANGINA SINE DOLORE."

BY ALBERT N. BLODGETT, M.D., BOSTON.

The subject of this communication is a man of about twenty-six years, a native of Spain, and is by profession teacher and performer on the mandolin. He has always been well, until attacked by his present affliction, from which he has suffered for a period of ten months past. He has never been in any malarious district, nor has he had any disease predisposing to nervous or mental disorders, so far as he is aware. His life is rather irregular, as he is in the habit of going about the country, and gives concerts or appears with other musical artists, and thus is often obliged to keep late and irregular hours.

In his habits he is not given to the immoderate use of wine, though he freely admits that he has been far from prudent in his social relations, and has suffered from gonorrhea during the past year, but is now free from the disease. He does not think that these dissipations or this disease have any causal relation with the troubles of which he at present complains.

About ten months ago he began to suffer from occasional attacks of distress, which he describes in the following manner: While in a state of quiet and free from excitement of any kind, he begins to realize a lack of breath, which occasions him to change his position, and is the cause of immediate and great anxiety, which he tries to relieve by making violent efforts to inspire air more deeply than he can. In this attempt he stands or sits, with open mouth, gasping, and apparently taking full and sufficient inspirations which, however, do not relieve the sensation of impending suffocation. He often throws himself into unusual attitudes or postures, in the effort to obtain ease from the sense of impending dissolution. He is at such times unable to go alone in the street; though this is no doubt partially and perhaps wholly due to the fear of impending death, rather than from any physical disability. He does not present any signs of lividity, or other indications of asphyxia at any of the times in which I have seen the patient, nor does his history or general appearance indicate that there is any serious impairment of the respiratory or other apparatus. The pulse is sixty per minute, the temperature normal, and there is nothing to attract attention to the patient as a sick person, except a look of restlessness, and the appearance of great anxiety. The face is clear, the complexion is fair, the lips not discolored, though the features are haggard and the eyes large and restless as if in terror.

Physical examination reveals no signs of organic disease of any organ. Pulmonary sounds are everywhere normal and quiet. . . . The only variation from a normal condition observed is in relation to the diaphragm, which appears to remain in a state of quiescence in all the movements of respiration. There is no noticeable contraction of this viscus, and the effort to take a "long breath," which is repeated on the average at intervals of one minute, is made by means of the thoracic muscles alone and is not perceptibly participated in by the diaphragm. The abdomen is not protruded in inspiration, but rather retracted, as if in the effort to overcome some obstruction. There is no wheezing, only an occasional cough of nervous or hysterical character, and no râles or other adventitious sounds in the chest. The patient is in fair strength and is able to give a clear account of his disease so far as he knows it, and, fortunately, he brought with him the record of treatment of his malady by several other eminent practitioners, both in Boston and in New York. He willingly gave the data thus acquired to me, and I have made them the subject of some investigation in the preparation of the present account of the case. The record is only that of therapeutic and dietary measures, and not of diagnosis, which I am disposed to believe was not clear in the mind of either of the former consultants, as it certainly is not in my own mind. The most of the documents relating to the treatment of this case are in the writing of one of the most distinguished clinicians in New York, and are most carefully arranged, and explicitly defined. They direct the use of various remedies, all of them addressed to either the digestive organs or to the reflex nervous system, and consist chiefly of mild alkalies, bismuth, pepsin, charcoal, the bromides, etc., and are accompanied by diet-lists which carefully exclude all substances calculated to undergo fermentative changes in the bowel, or in any way to increase the pressure within the abdominal cavity by the production of flatus or gas in the alimentary tract. Wine in diluted form was advised, and vegetables in general with the exception of potatoes are excluded.

The patient later came under the observation of a prominent physician of Boston, who gave strychnine in the dose of one sixtieth of a grain, and also prescribed carbonate of ammonia and acetic ether, to be taken at intervals through the day, evidently as a stimulant to the nervous structures. I have no record of the application of any form of electricity in the treatment of this case, but would suppose that some benefit might be hoped from it. My own prescription was for arsenic in small doses, with a solution of sodium bromide, with iodide of potash as an alterative, and the occasional use of a mild solution of cocaine to relieve the spasm when it was more than usually severe. I am unable to give the result of this treatment, as the patient was soon lost to view, and has not since been seen.

From the history of this case, even in its present meager form with the added indications afforded by the prescriptions of eminent practitioners, combined with the facts which I was able to elicit in my limited observation of the patient, I think that we are justified in assuming that we have in the phenomena here presented one of the obscure neuroses occasionally observed in varying conditions, the origin of which is not at present evident, but which, by interfering with the proper action of an important organ accessory to the respiratory act, is the occasion of great and protracted suffering, and which has thus far proved refractory to any form of treatment adopted for its relief. There are, I think, not sufficient grounds for pronouncing this a case of hysteria, but I am not disposed to say that there may not be in it a large augment, due to the prolonged duration (ten or more months) of the symptoms and the distressing character of the paroxysmal attacks; the constant sense of impending suffocation. Although the patient has never become unconscious, nor has he ever become livid, yet he has been at times unable to speak, or at least he states that this effect has been produced by the severity of the paroxysms. He knows of no ameliorating measures, nor does he know the cause of the varying severity of the attacks. He is in a state of constant apprehension during the attack, lest they become more severe than before; and in the intervals he is constantly anxious lest he be attacked anew. From this fear his sleep is disturbed, his peace of mind destroyed, and all the conditions necessary for the development of any degree of hysterical complication are fully maintained. The fact that the patient is of the male sex is, I think, no sufficient reason for eliminating the element of complicating hysteria from this case. I have not seen more evident indications of this condition in females than I have noticed in this man.

If I am correct in the view I have taken of this case, we have in the patient, who is its subject, a person who is affected with a reflex excitability of spasmodic character, which is confined to a certain limited development. It is of variously intermittent nature, and is excited to greater severity by some cause or causes not at present evident to the observer. The spasm resembles to a certain degree some of the phenomena of chorea, and is induced by similar conditions. There is no evidence of organic disease of any important organ or viscus, and all the functions of the body are carried on with regularity, except for the spasmodic interference with the respiratory act. The patient is of highly nervous temperament, and this, no doubt, has some influence upon the frequency, and possibly upon the degree of severity of the attacks.

In searching for a cause of the phenomena presented in the foregoing case, I have not been able to find anything in the way of family history, or personal idiosyncrasy which would to my mind sufficiently account for the symptoms presented by the patient. There is one feature of the case, however, to which I am inclined to think that the origin, and possibility the perpetuation, of the distressing spasm of respiration may be attributed. This is, the social indulgences to which the patient is addicted, and which he does not hesitate to say have been very immoderate, even in the view which such individuals are accustomed to take of those matters. The nervous disposition of the patient, associated with the character of the profession which he follows, with its frequent dissipations, its late and irregular hours, accompanied by the exhaustion of nervous power which must be the result of such a combination of circumstances, all would have a tendency to produce a degree of inordinate nervous irritability which would tend to show itself in disordered or irregular voluntary or involuntary acts.

I cannot explain why the reflex excitability is confined to the field of nervous distribution associated with the diaphragm, but there seems to be no doubt that such is the fact. There is no evident tendency on the part of the disorder to extend to other parts or organs, and I see no reason to apprehend that such extension is to be feared. It seems hardly necessary to mention the different varieties of local lesion which may be induced by the excesses in venery alluded to as the probable exciting cause in the present case. There is only one to which any weight could be laid, and this is syphilis; but there are none of the signs of this disease either in the past history or the present appearance of the patient, and it does not seem necessary to seriously consider this disease as a factor in this case. The existence of a pathological lesion in the shape of a tumor, either in the brain, or in some part of the nervous supply of the diaphragm, is hardly to be entertained on account of the variable intensity of the symptoms, and their stationary character, which we would hardly expect to meet in the history of a developing tumor. A degenerative affection of the nerves or of the muscular structures to which they are distributed is also hardly to be apprehended. If I may hazard a conjecture as to the character of the attacks from which this man suffers, I should place them in the same category with the distressing paroxysms of so-called "angina pectoris"; and believe them to represent one form of "angina sine dolore." There are no evidences of the condition which has been called "cardiac asthma," nor any signs of tonic contraction, the so-called "spasm of the diaphragm."

The treatment of such a condition as is here so imperfectly described must be somewhat upon the expectant plan, for the history of the case, and the observation of the patient give very little clew upon which to base a plan of medical procedure. The evident opinion of the eminent practitioners, who have been consulted by the patient before I saw him, was that the phenomena of the case were due to exaggerated reflex excitability, accompanied with, or aggravated by, some impairment of the digestion, or defect in the nutrition due to such impairment. The prescriptions would seem also to indicate that the possibility of some hyperemic condition of the larger nerve centers might have been also present in their judgment of the case. The medicines ordered were almost without exception such as would have a restorative and a restraining effect upon the cerebral centers and at the same time would exert a beneficial influence upon the nutritive functions.

The careful arrangement of the diet, which one of the consultants advised would seem to have been recommended on account of its anti-fermentative effect, rather than for the exclusion of any particular kind of aliment. The symptoms may be very obscure in some cases with undoubted signs of serious disease. Angina sine dolore, as described by the patient, may perfectly simulate dyspepsia or some other nutritional derangement. The underlying conditions may also include sclerosis of the coronary arteries, degeneration of the myocardium, cardiac hypertrophy, atheroma of the aorta, commencing aneurism, aortic regurgitation and some forms of chronic disease of the pancreas, mechanical pressure from the growth of a neoplasm, enteroptosis or adhesions of the viscera, effusions into the serous cavities, etc. Trousseau held that the angina, "air-hunger," is due to some disturbance in the sympathetic nervous system. A case presenting this special feature has recently been under my care, in which the distress was chiefly on account of breathlessness, though pectoral pain was also present. Death ensued from apparent extension of the respiratory paralysis without cardiac agony.

It seems to me a very fortunate feature in this case that no one of those whom the patient consulted has recommended the use of anodynes. In some cases of acute cardiac angina, these seem indispensable, as no other means can control the agony which the patient suffers. The present patient has not experienced the acute distress of the classical form of the disease, though he suffers from extreme apprehensions which have not yet been realized. I cannot but think that his occupation, which requires him to change to new scenes, the diversions and even the vexations of his calling are of service to him, as all authorities advise continuous occupation for mind and body, with unstimulating food and sufficient rest. This is indicated in the directions carefully written out for this man. Even in the true acute angina, up to the occurrence of the fatal attack, this is considered the best method of combating the mental and moral effects of the disease. There can be no doubt that the deep respirations which our patient endeavors to take contribute to the subsidence of a given attack, as massage has been thought to do in similar cases. This was noted by John Hunter, in the account of his own case, who asserted his belief that he had prevented himself from dying during a paroxysm by forcible deep breathing, although he died from the same cause in a later attack. This case is unfortunately not complete, and as the patient is at present resident in this city, and has already consulted more than one of the profession here, I thought it might be of local interest to present a sketch of so unusual a condition, feeling sure that any colleague who may become acquainted with the phenomena here reported will at once recognize the patient should he in turn be called upon to treat him; and I hope that some one will at a future time take up the case at the point where I leave it, and contribute a further chapter, and I trust a more satisfactory one, to the elucidaton of what to me has been an interesting and instructive study of a rare condition.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D.

THE SECONDARY OPERATIONS OF TRACHELORRHAPHY AND PERINEORRHAPHY DURING THE PUERPERIUM.

Francis H. Stuart, obstetrician to the Brooklyn Hospital, communicates to the editor of the *American Journal of Obstetrics*, vol. liv, p. 258, a brief report of thirteen cases of secondary operations performed on the cervix and perineum during the puerperium at the Brooklyn Hospital. He says that it has been his practice for a number of years to repair recent lacerations at about forty-eight hours after delivery. Now he comes forward with the first list of patients having old lacerations who have been subjected to operations for their repair during the lying-in period. He thinks that by doing the reparative work at this time many working women, who ordinarily neglect treatment because unable to spare the time away from their homes, can be saved from the serious consequences of these neglected lacerations.

The patients remain in the hospital only a little longer than is usual after delivery, and go home in as good condition as if they had come for the special purpose of having trachelorrhaphy and perineorrhaphy performed.

The results were, as a rule satisfactory, and there was no interference with the puerperium. The operations were performed two or three days after delivery for the most part, though in some cases a longer interval elapsed. None of the patients in this list had fresh lacerations.

[There are no comments on the facility experienced by the operator in making out the situation and extent of the old lacerations with the tissues swollen from the trauma of delivery, nor are there any observations on the patient's state of health at the time of operation. It is to be hoped that Dr. Stuart will furnish these important data in a later communication.]

EXTRA-UTERINE PREGNANCY.

The *Journal of Obstetrics and Gynecology of the British Empire* for June, 1906, publishes a symposium upon extra-uterine pregnancy, in which papers appear upon the diagnosis of early extra-uterine pregnancy, ovarian pregnancy, a clinical experience of ectopic pregnancy, and recent work on tubal pregnancy. The first three papers throw little new light on the existing knowledge of the subject, but the fourth paper, by Henry Russell Andrews, of London, a critical review of the literature since October, 1902, when he summarized the subject in a previous paper, is highly suggestive, notwithstanding his conclusion, to wit, "That beyond an occasional diverticulum or the presence of a mucous polypus to arrest the progress of the ovum, our knowledge as regards the etiology of tubal pregnancy is most unsatisfactory." As we should expect, a majority of the authorities quoted are German.

William H. Lamborn [1] also reviews the literature under the heading of "A Study of the Development of Extra-Uterine Decidua," and presents some specimens from a case of tubal pregnancy operated upon by Dr. T. J. Watkins for rupture at about the tenth week.

It would appear that the investigators in this field are divided into two camps, — one holding that true decidua is found only in the uterus, the other that it may occur in the tube, on the ovary, or at any point on the peritoneum even. The similarity of decidual cells of maternal origin to modified Langhans cells of fetal origin, and the great difficulty in distinguishing between them with the present known methods of investigation, has led to much confusion.

An attractive hypothesis is that of Hitschmann, who claims that "the bulk of the evidence is in favor of the view that the fetal cells act in a malignant or pseudo-malignant manner toward the maternal tissues, in somewhat if not exactly the same way as do the cells of a chorio-epithelioma; the difference seems to be one of degree only, not of kind." Thus rupture of the sac, abortion, is caused by this destructive action of the cells of the trophoblast, by bleeding, and by contraction of the muscular wall of the tube. It seems to be agreed that in studying tubal pregnancy it is necessary to make serial sections of the tube in order to be sure of the conditions present. Authorities are not yet in agreement whether tubal pregnancy is due to imbedding of the ovum in a diverticulum of the tube, or whether or no a previous salpingitis has any causative relation.

It has been suggested that the ovum can only plant itself at a certain stage of its development, therefore anything which delays its progress from the ovary to the uterus may cause it to be still in the tube when this stage is reached.

FORMATION OF AN ARTIFICIAL VAGINA.

J. J. Federow [2] adds another to the list of ingenious devices for covering with mucous membrane the walls of a vagina formed by dissecting in the cellular tissue between bladder and rectum in cases of congenital absence of the vagina. He

[1] Surgery, Gynecology and Obstetrics, September, 1906.

[2] Zentralblatt für Gynaekologie, 1906, No. 20.

constructed the vagina of the elastic portion of the rectum situated between the ampulla, internal sphincter, and the third sphincter. Resection of the rectum at this point to even half its circumference does not interfere with its function. An incision was made in the perineum, and through it a strip of rectum was obtained, which was sutured into the newly formed vagina.

In the author's case there was absence of uterus, ovaries and vagina. With the strip of rectum he formed a blind pouch lined with mucosa and having elastic walls.

A. Brothers [3] contributes an exhaustive article on the formation of an artificial vagina, the literature being reviewed at some length. His case was a patient twenty-one years of age, with absence of vagina, uterus and ovaries. He lined the new vagina with slips from the labia minora, and also with Thiersch skin grafts from the inner side of the patient's thigh, two graftings being necessary. The final result was a useful vagina.

THE LYMPHATIC GLANDS IN PRIMARY SYPHILITIC INFECTION IN WOMEN.

R. Bergh [4] relates the findings in the lymphatic system in 1,260 women examined during the last eighteen years. The women were mostly young, and 321 were professional prostitutes. The inguinal glands were found enlarged in practically 100%, the posterior cervical glands in 83%, the submaxillary in over 43, the axillary in over 33, the epitrochlear in over 15, the mastoid in 10, the anterior cervical in over 8, the occipital in over 4, the paramammary in 3 and the popliteal in 0.7%. The enlarged glands were indolent as a rule; but sometimes they were a little tender. Suppuration occurred in only 15 cases, about 1.2% of the total. The suppurating glands were the inguinal in 8, the submaxillary in 5, and the axillary in 1. The literature on the subject is reviewed.

CURETTING THE BLADDER. PERFORATION.

The danger which attends curetting the bladder is illustrated by a case reported by C. Stern.[5] His patient, a thin woman of fifty-seven, had a papilloma of the bladder. He measured the distance from the meatus urinarius to the papilloma and introduced a catheter curette very cautiously, the patient being under the influence of chloroform anesthesia. Almost at once the tip of the curette could be felt close under the abdominal wall. Stern advocates suprapubic cystotomy instead of curetting.

MICROSCOPIC FINDINGS IN RABBITS' OVARIES AFTER ROENTGEN EXPOSURES.

Specht [6] has continued Halberstädter's experiments on rabbits. He found marked changes in the ovaries in from twelve to twenty-four hours after a single exposure of one or two hours with comparatively mild tubes. The vessels of the ovary did not seem to be injured, the changes affected mostly the cells, especially those of the primary follicles and of the interstitial parenchyma. He remarks that it is important to protect the ovaries in exposing the abdomen of female patients. It may prove possible to treat the ovaries directly by proper therapeutic dosage of x-ray exposures. The conditions are less favorable than in rabbits, as rabbit skin is much less sensitive to the rays than human skin, but it seems probable that repeated exposures spread over a sufficiently long period might induce atrophy of the ovaries without secondary injury.

K. Försterling [7] found by experiments on dogs and rabbits that a marked disturbance of growth was noted after mild exposures to the x-rays. The younger the animal the more marked the inhibition of growth, not only of the animal as an individual, but of any part exposed to the x-rays.

A NEW OPERATION FOR ANTEFLEXION OF THE CERVIX.

Dr. W. H. Baker [8] publishes a preliminary report on an operation he has performed to correct pathological anteflexion. Instead of splitting the posterior wall of the cervix in a longitudinal direction after the method of E. C. Dudley, he takes out a wedge-shaped piece, the long axis of the wedge being transverse and the apex of the wedge being at the region of the internal os. It is immaterial whether the uterine canal is opened or not. In one case the peritoneum of the posterior cul-de-sac was entered. The wound is closed with silver wire sutures which are twisted. Good results and primary union are reported. The operation is difficult because of the intact hymen usually present in these cases. The wedge of tissue is removed either with a knife set at a right angle to its handle, similar to the old Sims uterotome, or by a pair of the Emmet full curved scissors.

C. W. Barrett [9] performed a somewhat similar operation by the abdominal route. He made a longitudinal incision on the posterior aspect of the uterus at the point of flexure and then converted this into a transverse incision by means of interrupted sutures. [A valid objection to Barrett's procedure is the toughness of the uterine tissue in anteflexion cases requiring surgical treatment that does not lend itself to the sort of plastic operation he employed. Baker's operation might be performed by the abdominal route in selected cases by those operators who are more at home in this field of work.]

OVARIAN TRANSPLANTATION.

Robert T. Morris gives an instance of heteroplastic ovarian grafting followed by pregnancy and the delivery of a living child.[10] The patient was twenty-one years of age, began to menstruate at fifteen and ceased at nineteen, following her marriage when eighteen. Pregnancy terminated in miscarriage at the third month. Following the miscarriage the catamenia did not reappear and there was complaint of pelvic pain, headache and hot and cold flashes, these symptoms being most marked at the time when the monthly flow should have appeared. The diagnosis was cirrhotic ovaritis.

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[3] Amer. Jour. Obst., Sept., 1906.

[4] Hospitalstidende, Copenhagen, 1906, xlviii, No. 49; Jour. Amer. Med. Assoc., July 14.

[5] Deutsch. med. Woch., xxxii, No. 15.

[6] Archiv für Gynaekologie, lxxviii; Jour. Amer. Med. Assoc., July 7, 1906.

[7] Zentralblatt für Chriurgie, xxxiii, No. 19.

[8] Amer. Jour. of Obst., July, 1906.

[9] *Ibid.*, Sept., 1905.

[10] Medical Record, May 6, 1906.

At operation the ovaries were removed with a Tuffier's angiotribe in order to assure complete removal. After the removal of each ovary a slit was made through the peritoneum of the broad ligament on either side, parallel with the oviduct, and dorsal from the original seat of the ovary.

Into each slit was inserted a wedge-shaped strip of ovarian tissue previously removed from another patient and preserved in a saline solution at 100° F. until the first operation was completed and the broad ligaments of the second patient had been prepared for the grafts. A single catgut stitch held each graft in place. The uterus and oviducts of the first patient appeared to be normal. Both patients made good recoveries.

Four months after the operation the patient who had received the grafts menstruated for five days, then there was no menstruation for five months. The next month she flowed for four days, and menstruation after that became regular with a flow of four or five days at each period.

Four years later she was delivered of a daughter weighing seven and a half pounds and the mother had a good flow of milk.

The ovaries removed from this patient were examined microscopically and found to be cirrhotic, distended with many small cysts, and to contain no formed Graafian follicles.

[It is interesting to note that in this case there had been a pregnancy previous to the transplantation of ovarian tissue. So also in resection of the Fallopian tubes and formation of new ostia, we are not aware of any cases on record in which pregnancy followed the operation except in those women who had been pregnant previously.]

RESULTS OF OPERATIVE TREATMENT OF UTERINE FIBROIDS.

O. Sarwey [11] analyzes the results of 430 operations for myoma at Döderlein's clinic at Tübingen. Comparing them with other's statistics he finds the total mortality of myoma operations to be 4% or 5%; those done by the vaginal route show 1% or 2% higher mortality and the conservative operations 1% higher mortality than the radical operations. He comments on the great frequency of the complications of myomata and declares that they are a strong argument for operative treatment. The ultimate outcome, he says, in cases treated by removal of both ovaries in connection with the radical operation, are the best conceivable. Disturbances connected with the artificial menopause were noticed in only a third of the patients and were always so slight and transient as not to interfere with the capacity to work. Danger of trouble with the ovaries later is thus summarily done away with. Conservative operations have several drawbacks, among them the possibility of recurrence and of rupture of the uterus at the point of enucleation. Youth and the express wish of the patient to retain the menstrual function and the possibility of conception are the only indications for conservative procedures. Sarwey urges not to waste time on symptomatic treatment if it does not speedily prove effectual, but to operate promptly after fully instructing the patient in the matter.

DOUBLE OVARIOTOMY DURING PREGNANCY.

A. Brothers [12] reports a case of bilateral oophorectomy with removal of an intraligamentary cyst the size of an apple without interrupting gestation.

He used the transverse suprapubic incision in the abdomen and thinks that it lessens the risk of hernia, especially in operations performed during pregnancy.

The patient made a good convalescence, went to term and was delivered of a ten-pound baby, which she nursed. She continued to menstruate after the operation and Brothers thinks this may have been due to his having left a small portion of ovarian tissue in the stump.

He has collected from the literature 47 cases of double ovariotomies performied during pregnancy, with interruption of gestation in 9, or 19%.

Fehling placed the mortality of ovariotomy during pregnancy at 5%. Graefe by the study of later statistics has reduced the mortality to 2.3%.

SILVER NITRATE AND METALLIC ZINC IN CHRONIC GONORRHEA.

F. Balzer and A. Tansard [13] suggest the use of the following treatment in vaginitis and metritis of gonorrheal origin, having found it efficacious in the treatment of chronic gonorrhea in males. Ten or twenty drops of a 1% solution of silver nitrate are instilled in the urethra, followed immediately by the insertion of a catheter made of metallic zinc. A chemical reaction is set up between the silver salt and the zinc by which the silver nitrate is decomposed and silver albuminate and silver chloride are deposited on the mucosa of the urethra. As a result of the chemical reaction there are formed, in addition, metallic silver, traces of zinc chloride, and zinc nitrate the most effective agent of all in the treatment.

The zinc catheter is held in the urethra for a minute or two, or until the patient experiences pain and the vaseline with which the catheter is lubricated is turned black. On withdrawing the catheter it is found to be discolored.

It is rubbed with potassium iodide until it has resumed its usual color, but as it soon loses its polish it has to be sent to the instrument maker frequently to be polished.

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[11] Archiv für Gynaekologie, 1906, lxxix, No. 2; Jour. Amer. Med. Assoc., Sept. 22.

[12] Medical Record, vol lxx, p 256.

[13] Annales de Maladies d'Organes, Génito Urinaires, 1906, xxiv, No. 9.

The authors treated cases of rebellious chronic gonorrhea and obtained good results in all instances after from five to nine applications.

The method could be adapted easily to the treatment of vaginitis and metritis.

TYPHOID AND TUBERCULAR INFECTION OF OVARIAN TUMORS.

H. C. Coe [14] reports a case of typhoid infection and a case of tubercular infection of an ovarian tumor and reviews the literature of each. The common form of infection by pyogenic bacteria is omitted from consideration.

The literature of tubercular infection of ovarian cystomata is scanty. Madlener distinguished two classes, viz.: (1) There is a pre-existing cyst, which becomes infected secondarily, as in cases reported by Sir Spencer Wells, Baumgarten and Sänger. (2) The tumor appears to be a cystoma, but on section is found to be a homogeneous mass,— really a primary tuberculosis of the ovary, with secondary cyst formation. This author reports a case in which the infection was clearly primary in the Fallopian tube, extending thence to the cyst, the patient later developing pulmonary tuberculosis, to which she succumbed, no operation having been performed. Sänger removed a large cystoma, in the inner wall of which were several tubercular nodules. Similar nodules were found in the corresponding tube and scattered over the peritoneum. As the cyst had been punctured several times, the writer inferred that infection had occurred in this way.

In the case of typhoid infection some thirty-six cases are reported in the literature. Pure typhoid infection is rare, the infection being usually of the mixed type, pyogenic being secondary to the typhoid infection. Coe calls attention to an interesting fact which has been overlooked by other writers, namely, that in almost every instance the infected cyst was a dermoid. This he regards as something more than a mere coincidence, since it would seem to show that the sebaceous material forms a more favorable medium for the development of the typhoid bacilli. The tendency of dermoids to suppurate is well known.

The question of diagnosis is of most interest to the general practitioner, especially in cases in which attention has not been directed to the pelvis as the possible source of the trouble. Late relapses, fever of a hectic type and persistent abdominal pain and tenderness should lead one to make a careful bimanual examination. Even then a high leucocytosis would point rather to local suppuration. The invariable presence of a Widal reaction in all the cases reported is really the only positive clew to the true condition.

The surgical prognosis is good. Prompt intervention is indicated.

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Dr. G. Hauser, Professor of Pathology at Erlangen, has declined a call to Wurzburg, in succession to Dr. von Rindfleisch. — *Science*.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION. ANNUAL MEETING AT ATLANTIC CITY, MAY 12-14, 1906.

(Concluded from No. 15, p. 413.)

DISCUSSION.

Dr. J. M. Anders, Philadelphia: While the principal facts have been adduced, there are a few points which deserve further emphasis. In the first place, it has for years seemed to me that to send patients, especially those suffering from nephritis in the incipient stages, to a comparatively dry climate at sea level or a slight elevation, gives equally good results as a truly warm, dry climate. We have a number of health resorts in New Jersey, *e. g.*, Atlantic City, Cape May and Lakewood, having a relatively dry climate throughout the greater part of the year. They have two additional advantages,— an appropriate dietary and a competent medical supervision of the cases. One of the principal objections to the majority of health stations is the strong wind currents. Strong currents facilitate evaporation from the body, but they do so in an irregular way, and cool the surface so rapidly as to produce chills. For this and other reasons these resorts are not sufficiently protected from strong winds. The use of water internally, if systematically carried out, tends to increase the flow of urine, and tends to hasten the elimination of solids which act injuriously if retained in the system. Very few solids, particularly urea, are eliminated through the skin, from the use of dry heat or the wet pack, but by forcing the blood to the peripheral vessels we relieve congestion of the kidneys. The amount of urine as an immediate result is increased and elimination in a great measure restored. I would, therefore, urge strongly the use of water as a diuretic as well as a diaphoretic. We can give more water than is useful, but I have made it a general rule not to exceed three quarts daily. Von Noorden has shown that three quarts of fluid *per diem* does not increase arterial tension. Concerning the duration of baths in chronic nephritis, I believe it better to give a repeated short, rather than a prolonged hot, bath. Dr. Sewall referred to it when he said that discrimination is necessary in dealing with these cases. It is unwise to send a patient with chronic nephritis with dilatation of the heart to a moderate elevation even, for we constantly see disastrous results from overstimulation under these circumstances, a low blood pressure bringing about a more rapid dilatation. I have seen more than one case of chronic nephritis with good compensation combined with tuberculosis in the incipient stage do exceedingly well at health stations moderately elevated, say from two to three thousand feet. After we have made our diagnosis of chronic nephritis, we must not only recognize the stage, but especially the peculiarities presented by the individual case with reference to the condition of the heart and other organs; we should then go a step further and take the precaution never to send a nephritic to a resort where he cannot get appropriate diet and competent medical supervision.

Dr. J. H. Elliott, Gravenhurst, Ontario: The paper was presented ably by Dr. Bonney. Treating the patient as well as the disease is important. The patient should not be hampered in his treatment by the excessive zeal of his friends in offering advice not given by the attending physician. As to the tents, I also think that no tent can be made to replace a properly constructed room for the patient. There are patients who can get along in a tent better than indoors, but the average patient wants more attention than he can get here. Under certain atmospheric conditions it is difficult to keep the temperature well regulated. I have found patients who have the mistaken idea that cold air is pure air, struggling under five or six blankets and wondering why they are tired. As to antistreptococus serum, I have had some experience which has shown that about one in five shows the benefit of the use of the serum. During the past year, I have been giving the serum by rectum, and I do not think there is quite as much reaction in cutaneous rash and joint pains.

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[14] Surgery, Gynecology and Obstetrics, Sept., 1906.

Dr. C. L. Minor, as to the question of the distinct superiority of properly arranged rooms instead of tents: We must realize in going back to ordinary life, the patient goes to a room, and after living in a tent the room would feel stuffy. I do not see that it is wise to have these patients in tents except in summer time.

Dr. J. H. Pryor, Buffalo: How many cases of urticaria did Dr. Bonney see as a result of antistreptococcic treatment?

Dr. E. R. Baldwin, Saranac Lake: Was the fall in temperature any more marked in cases treated with the serum than in other cases treated without it? In two out of twelve patients in whom the same variety of serum was used by me there was improvement, but not an influence on the temperature which was certainly attributable to the serum.

Dr. W. D. Robinson, Philadelphia: Has the serum anything to do with the tubercular poison, or is it a mixed infection?

Dr. Lawrason Brown, **Dr. A. H. Allen** and **Dr. E. J. S. Lupton** read the report of

A BRIEF STUDY OF A DIPHTHERIA EPIDEMIC

at the Adirondack Cottage Sanitarium, Saranac Lake, New York. The origin of the epidemic was in doubt; one of the orderlies after a visit to his home early in October, 1905, developed a membranous tonsillitis, which on a single culture showed streptococci and no diphtheria bacilli. After a few days' isolation, he was allowed to resume his duties. Several other cultures taken from his throat at intervals later on during the epidemic, as well as those from his room-mate, were always negative. In the latter part of the month one of the maids who had recently begun work in the laundry, and who was with the orderly quite frequently, developed tonsillar diphtheria. Seven cases of diphtheria developed. All patients and employees irrespective of any pulmonary or other trouble received 500 units of the antitoxin, prepared by the New York State Board of Health. Some who were considered to have been more exposed received 1,000 units. On January 16, more cases developed, and on the 21st, cultures were made from the nose and throat of every inmate of this institution; 22 patients and 9 employees, including the *chef* and baker, revealed positive cultures. The epidemic lasted 51 days. Eleven cases of clinical diphtheria developed, and in 32 other individuals, diphtheria bacilli were found in cultures. There were no fatalities, and no serious complications; 400 immunizing doses were given to 129 tuberculous and 45 non-tuberculous persons. The purified antitoxin of the New York City Board of Health, produced much fewer unpleasant symptoms than the other varieties. Urticaria was severe in 16 cases. Axillary glands enlarged in 5 cases. The authors showed that in institutions immunizing doses of antitoxin of 500 units should be given every two weeks for two or three times. Diphtheria may occur in patients two weeks after an immunizing dose of 500 units. In the presence of a diphtheria epidemic patients with pulmonary tuberculosis should be treated, as regards the diphtheria, as apparently healthy individuals. The antitoxin in small or large doses seems to have little or no effect upon the pulmonary tuberculosis. Immunizing doses may be given to patients with fever and there are no more complications with the tuberculous than the non-tuberculous.

DISCUSSION.

Dr. D. Braden Kyle, Philadelphia: The paper brings up that old subject on the effect of bacteria on bacteria. We know it is a fact that certain bacteria, like people, get along together, and others do not. One germ produces a toxin that is antagonistic to certain bacteria while to others it is synergistic. We rarely see certain infectious diseases in a certain individual. We rarely see specific infections like syphilis and tuberculosis in the same patient. I am inclined to believe this is due to the effect of the toxin produced; this gives a certain reaction and immunity in some cases, and not in others. I saw one case of tubercular history, no distinct pulmonary lesion, with decidedly large glands in the neck. That child developed a malignant diphtheria, was given enormous doses of antitoxin and in less than six weeks the glands broke down. They were all removed and in six months the child developed a rapid tuberculosis and died. Tubercle bacilli were found in the glands, and not in the sputum. Glandular tuberculosis from the standpoint of antitoxin differs largely from pulmonary tuberculosis; you will find that the glandular cases are susceptible. I am a great believer in diphtheria antitoxin, in fact all the antitoxins, but I always use them with a certain amount of fear because we do not know their therapeutic action. I studied the effect of diphtheria antitoxin on bacteria, and it is certainly an erratic agent. You know that in some tuberculous cases we have difficulty in demonstrating the bacillus. If we test the sputum we find it acid, and it will not take the stain; it must be rendered alkaline first. The peculiar reaction that we get from antitoxin in certain cases may be due to strongly acid secretions. In a recent case of acute thyroiditis with marked edema of the larynx, antitoxin was used and in twenty-four hours the swelling disappeared. In less than three days the other lobe of the gland became involved with the same dangerous edema, and we gave drugs but no antitoxin. The same rapid crisis took place and the same recovery.

Dr. T. D. Coleman, Augusta, Ga.: I have frequently seen at the autopsy patients that have died of tuberculosis who had syphilis in all its stages. It is time to call attention to the fact that the diseases do coexist. Dr. Brown was fortunate in limiting the epidemic to the proportions that he did. We know that certain germs live together nicely, and other antagonize each other. It would be interesting to follow the remote effects in these tuberculous cases.

Dr. H. M. Bracken, of Minneapolis, said that in Minnesota it is practical to isolate the non-clinical cases satisfactorily and repeatedly at various state institutions. He though it was a mistake not to have taken early cultures from those in the sanitarium, who did not show symptoms of diphtheria. By this means it might have been possible to trace the source of the original infection and, by isolating any who showed the presence of the bacillus, the epidemic might have been repressed more quickly. Dr. Bracken does not believe that syphilitics are exempt from diphtheria.

Dr. L. Brown, Saranac Lake: We know that many patients in good health have diphtheria bacilli in their nose and throat. In regard to the maid, I mentioned her merely to show that the quarantine was not as strict as we thought it was. Unless you have a competent nurse in charge, you cannot be certain that the patient is isolated.

Dr. John H. Pryor, of Buffalo, read a paper on

DEEP BREATHING AS A THERAPEUTIC AND PREVENTIVE MEASURE IN DISEASES OF THE LUNGS.

DISCUSSION.

Dr. I. H. Hance, Lakewood: One group of muscles, the scaleni, have been overlooked in the exercises for deep breathing. All those that are given in the paper are to raise the lower ribs. In talking over the subject with Dr. Knopf, I found him of the same opinion. I will show you one exercise which brings the scaleni muscles into play by throwing back the head at the end of respiration. The upper ribs are thereby drawn forcibly upon and elevated.

Dr. James M. Anders, of Philadelphia, read a paper on the

FRESH AIR TREATMENT OF ACUTE RESPIRATORY DISEASES WITH ESPECIAL REFERENCE TO PNEUMONIA.

A great drawback in treating pneumonia, are the misguided hopes, based on the products of the manufacturing pharmacist instead of recognizing the curative value of natural elements, such as rest, air, sunshine and appropriate feeding. Dr. Anders said that in combating high temperature in various acute infections it is recognized that we have an efficient measure in hydrotherapy, cold baths directly abstracting heat from the body, and at the same time stimulating the nerve centers; by analogy then we must appreciate the value of a cold, dry atmosphere which must exercise an analogous effect. Cold air diminishes the frequency of internal congestion and stimulates the respiratory function so that more oxygen is absorbed. In foreign countries the medical profession has learned the lesson that mountain resorts are better tolerated by invalids in winter than the ordinary lowlands, though the latter are in closer proximity to the tropics. Pneumonia patients are in no danger of contracting a cold from plenty of cold fresh air; nurses may have to wear wraps. Not all cases are suitable, and individual peculiarities must be respected. Also when pneumonia supervenes in the course of advanced Bright's disease, or, in persons having a highly sensitive nervous organization, exception may be made.

Dr. R. A. Cleemann, of Philadelphia, read a paper on the

STATE SEGREGATION OF CONSUMPTIVES.

Poor results in reducing the mortality of phthisis are due to conservatism or skepticism, or lack of energy of those physicians who believe in the modern methods of combating phthisis, but have not the force to overcome the inertia of their patients who find the rigid *régime* required too difficult to follow. Dr. Cleemann estimated that 6,500 patients suffer with tuberculosis in Philadelphia and if placed in a hospital, would require an expenditure of three and a half million dollars a year. Dr. Cleemann said he did not recommend that these unfortunates be compelled by law to go to these sanatoria— at least not at first.

DISCUSSION.

Dr. J. H. Pryor, Buffalo: I believe that the ideal method of prevention is the care of the incipient case. Take the man from his home and give him a chance for his life. It is not sufficient to take a man from his home when he is advanced, to say he is dangerous, and has to be segregated. I have become extremely skeptical about all the measures employed, and I have seen in a home every possible method of prevention employed, and yet other cases develop, and in the next house where no prevention is employed, people don't take the disease. It is not fair to say that the decrease in tuberculosis is due to special measures, because we have had an enormous lessening in the general death-rate. Last year men stated to the New York legislature that there was a decrease from tuberculosis deaths and that it would soon be wiped out. This year there was an increase by 1,500 and it is not being wiped out. The death-rate of tuberculosis moved with the general death-rate. I believe that in every city there are many false certificates filed. That is brought about by the family desiring to obtain the insurance. I know by actual experience the economic side appeals more than the humanitarian side. I believe that we don't know much about prevention, and that we are deceiving ourselves right along. There is something intangible, something latent in the child which develops later on in life under certain conditions. It is right to build sanatoria for the incipient cases now, and take up the advanced cases later.

Dr. Norman Bridge, of Los Angeles, presented a paper on

THE HOT MORNING BATH.

Dr. Bridge thinks it a great mistake for weakly or sick persons, who have been impressed with the value of the cold bath as others take it, to try, day after day, in vain, to get similar results. They do not react and the process becomes an ordeal. Dr. Bridge thinks the hot bath much better for consumptives; that it does not favor catching cold by "opening the pores;" that there is no proof that a hot quick bath, without a cold douche, is not followed by as good and as useful a reaction as a cold one; and there is abundant proof that it is so followed. Dr. Bridge believes the cold bath martyrdom uncalled for.

Dr. W. D. Robinson, of Philadelphia, read a paper on

LIGHT: RADIANT ENERGY.

The study of climate is practically the study of radiant energy and those inseparably associated conditions or states which it influences and which influence it. The paper consisted of a discussion of the physics of light. It was stated that normal blue and violet light enfeeble and diminish the virulence of pathogenic organisms but do not kill them.

Dr. Boardman Reed, of Philadelphia, read a paper on

CLIMATE IN RELATION TO DISORDERS OF METABOLISM AND THE CIRCULATION.

Dr. Reed stated that high altitudes exaggerate heart troubles and affect injuriously the nervous system of some patients, impairing sleep, digestion and metabolism, thus lowering nutrition. Removal to a lower level is naturally indicated. Residence at the seashore is better for tuberculous patients who also have nephritis or cardiac disease. Chronic dyspeptics, as well as the aged, have generally a perverted or defective metabolism and, as a necessary consequence, their hearts, arteries and kidneys are usually diseased or at least open to suspicion. Such patients need a dry, moderately warm climate at not too high an altitude. The milder dyspeptic and hepatic cases, without senile changes or faults in the circulation or kidneys, may do better in the dry cold air of the western plateaux, if hardy enough to live out of doors.

Dr. Charles L. Minor, of Asheville, read a paper on

THE APICAL OUTLINE AS AN AID TO DIAGNOSIS IN PULMONARY TUBERCULOSIS.

This apical outline is also known as "Krönig's Sign" and its value depends on the tendency to shrinkage of the apex of the lung, and, indeed, of the whole lung when a tuberculous process is in it; this occurs not alone from fibroid formation in the apex of the lung, but even before such fibrosis occurs through lessened function in the apex or other parts of the lung. This lessened function renders the sign valuable in the early stage of phthisis. Dr. Minor prefers the little finger as a pleximeter in marking out the borders. The stroke must be vertical and elastic and lightly given. The patient should sit erect or stand. Directions were given for outlining the apex and its normal boundaries. Dr. Minor showed drawings and tracings taken directly from the body illustrating the normal and abnormal outline.

Dr. F. M. Pottenger said he had used this method and considered it of value.

Dr. J. H. Pratt, Boston: My attention was first called to Krönig's isthmus by Dr. Minor. It is surprising to note how early this change occurs in tuberculosis. A light percussion stroke should be used in outlining the apical isthmus. The first change in the apical outline is usually a narrowing of the resonant area above the inner half of the clavicle.

Dr. J. H. Pryor, Buffalo: This method of studying the position of the tip of the apex is valuable from the standpoint mentioned by Dr. Bonney. You may find a change in the apex which you may find on percussion, and while you get the diminished apex, you will get the whispered sound to perfection, showing that you have a fibroid change with a retraction of the apex, and you will also find that you are wrong in your percussion as shown by the whispered sound.

Dr. Bonney, of Denver, said that the method had its limitations and cautioned against neglecting the older and easier methods of diagnosis. While shrinkage may be due to other causes than fibrosis, the fact remains that the majority of cases of fibrosis are due to a pre-existing tuberculosis which has been shrinking. Therefore this shrinkage at the apex is without diagnostic value if the person had some tuberculosis before. If this shrinkage were due to an improper function, and if there were existing an early tuberculous process, there would be other signs of its presence. Dr. Bonney has observed the lung shrinkage on one side and on the other clicking sounds with cough, and this leads him to feel how easy it would be for any one searching for a shrinkage to find it without seeing the new foci on the other side.

Dr. A. D. Blackader, of Montreal, said he puts a great deal of importance upon the variation and the amount of difference he gets with full expansion. He regards this point as very important.

Dr. C. L. Minor: I would be sorry if I encouraged anybody to neglect other steps in an examination. On the one hand you will find a whole supraclavicular fossa, and then on the other side a retraction would be found of the inner border on a delicate percussion. One of the first evidences of beginning tubercular process in the lung before fibrosis is a functional decrease in the size of the lung; this, is a very early sign. I would refer to Lagrange, "Medication par l'Exercise" and Campbell, "Respiratory Gymnastics" and Tissier, "Cohen's System of Physiological Therapeutics."

Dr. F. M. Pottenger, of Monrovia, Cal., read a paper on

"SPLITTER" AS AN AID IN THE IMPORTANCE OF MICROSCOPICAL DIAGNOSIS OF SOME OBSCURE CASES OF PULMONARY TUBERCULOSIS.

"Splitter" is a supposed developmental form of tubercle bacilli and is found in persons who show resistance to the disease. The term means "fragments" and is used by Spengler and Niessen. Under the microscope these small round bodies look like cross-sections through the body of a bacillus; they take the stain just as tubercle bacilli. They are always round, sometimes single and sometimes in clumps; sometimes accompanied by tubercle bacilli, but very often nothing but splitter will be found. Dr. Pottenger gave the history of six cases illustrating the manner in which the finding of splitter has confirmed the diagnosis of tuberculosis made on physical examination in the absence of bacilli. In one of these doubtful cases the patient had been examined by many able European clinicians; all found evidence of tuberculosis in the right upper lobe, but when the microscope failed to show bacilli in an abundant mucopurulent sputum they were reported to have backed down in their diagnosis. In this case Dr. Pottenger examined for splitter, found them and put the patient on tuberculin treatment; reaction was then obtained confirming the diagnosis. The other cases cited showed that the examination for splitter is a valuable aid in all doubtful cases.

DISCUSSION.

Dr. E. R. Baldwin, Saranac Lake: I do not know of any observations of mine that would confirm Dr. Pottenger's statements of the presence of fragments of bacilli in tuberculous sputum and diagnosing them as such without the bacillus being present. It would always be necessary to produce the disease by inoculation in a guinea pig. For myself I should insist on the inoculation disease in the pig before accepting the microscopic findings.

Dr. William C. Glasgow, of St. Louis, presented a paper on

THE CONSIDERATION OF THE TEMPERAMENT OF THE INDIVIDUAL A NECESSARY FACTOR IN LOCATING A CONSUMPTIVE.

The weak and spineless individual with no will power had better be left at home. We find this temperament often in cases of laryngeal tuberculosis. No physician in any climate wishes a patient who has lost his grip. Such people are not good mixers; they make no friends and do not enter readily into the sports and amusements of others. Such persons should be accompanied by some member of the family.

Dr. Sherman G. Bonney, of Denver, read a paper on

THE CARE OF FAR-ADVANCED CASES OF PULMONARY TUBERCULOSIS.

He called attention to the attitude of the physician in assuming the responsible direction of the patient; the necessity for energy, infinite patience and regard for the smallest detail in the protracted period of observation; fresh air and rest combined; principles of diet; the management of fever. Dr. Bonney believes it best in the majority of instances to acquaint the patient and family with some intelligent conception of the disease. In addition to prescribing rest, fresh air and plenty of good food, the physician is under obligations to see that the patient gets such accommodations and surroundings as will insure the proper continuous execution of his directions. The vital point ever to be borne in mind is the thought that it is not the disease itself but rather the individual offering the greater field for study and attention. Consumptives are liable to be wayward, nervously perverted and commonly lack self-restraint; but there are exceptions with almost angelic disposition. Dr. Bonney thinks that patients domineering, wilful and difficult of management about the age of eighteen, especially when with parents.

Dr. Bonney does not believe much in the aërarium or other device for putting the head out of a window; nor in tents. Physical comfort and cheerfulness are of prime importance. Sleeping on second story porches with a permanent roof is advised. Screens should be provided. Patients should not be exposed to the direct rays of the sun except when perfectly comfortable. Patients should not sleep out of doors in bad weather if it is not comfortable to do so. Dr. Bonney believes in superalimentation. A good nurse helps wonderfully in this matter. The principles of a selected dietary were then discussed. Br. Bonney allows sherry, Moselle or Rhine wine. Dr. Bonney has used antistreptococcic serum in selected cases. Reaction may take place inside of twelve hours or may be delayed six weeks. Dr. Bonney has practised its tentative administration lately by the rectum before resorting to its hypodermatic use, in order to avoid the discomfort which sometimes follows its injection into the tissues. He has seen good results even when streptococci are not seen in the sputum. It is specially suitable when a septic condition is present.

DISCUSSION.

DR. HOWARD ANDERS, Philadelphia: We ought to approach the far-advanced cases more readily from the standpoint of being able to help them and that they should not be discarded for euthanasia. We are becoming more and more inimical to therapeutic socialism. Such aspects as Dr. Bonney brought out as to the psychic, financial and other relations of our patients are refreshing.

DR. C. L. MINOR: The remarks of Dr. Bonney on the use of antistreptococcic serum in advanced cases agree with my experience. I have not found it a reliable remedy. Quite a large percentage of high febrile cases with chills and expectoration and advanced destruction in the lungs are benefited by it. I have never seen any bad results in these advanced cases, and if the patient can afford it, it is indicated in some cases. I have never tried it per rectum.

DR. GUY HINSDALE, Hot Springs, Va.: I was interested by the reference to the action of the hydrothermic treatment on the rate of the heart and respiration by Dr. Marvel. The statement is made, and it is true that as soon as the reasonably healthy subject is put into a hot-air cabinet and allowed to remain at 105° for ten minutes the rate will rise to 110 or 120; then after the application of the rain douche, a needle douche starting at 105, reducing it to 60, the pulse rate will fall from 120 to 65 inside of 5 or 10 minutes. While the other treatment is being carried out, and the patient is being dried and laid on a couch, the pulse falls until it touches a mark 40 to 50 points below what was noticed after entering the cabinet. That is true of patients with sound hearts; but when you have a valvular disease, for instance, mitral regurgitation, and where the muscular elements of the heart permit you to employ a bath of that kind, I have noticed that the difference between the high and low mark of the pulse is much smaller; so, instead of noticing a variation of 30 to 50 beats between the high and low, we get a much less variation, perhaps but 10 or 15. The condition of the heart is also another guide to the amount of water you are permitted to give internally. I believe it unwise to give, in cases of renal disease with weak heart, especially where there is edema, much water. Give it in the form of milk, in that way affording nutrition and a supply of liquid for the blood. About three or four pints of skimmed milk are given, a much better action being obtained with skimmed milk. The rules which were outlined by Dr. Ransom for treatment meet my views. Certainly, no nephritic should be sent far from home, if at all. In cases of chronic nephritis, especially where the climate as well as the character of the waters is suitable, we can make use of the spas favorably situated, where outdoor life can be had. The whole class of salines is to be excluded in cases of nephritis, so that every particle of salt that is added is only a load on the kidney, and chloride retention is a disadvantage in the treatment of nephritis. Waters that do not contain more than from one to three grains of solid contents, and waters without sodium chloride, should be taken.

DR. R. H. BABCOCK, Chicago: I really was desirous of remaining silent this morning. There are, however, one or two thoughts I should like to express, confining my remarks to chronic nephritis. The time has come when we no longer fasten our attention on the kidneys as we do on the cardiovascular system. This is the trend of modern therapy, thanks to the teachings of Von Noorden. Chronic nephritics die from the heart rather than the kidneys. So long as the heart remains competent, disease of the kidney is a subordinate matter in a certain sense, that is, so long as the heart is competent, renal elimination is sufficient, provided the system can be spared the results arising from intestinal toxemia. We must look at our cases from the standpoint of hypertrophy on the part of the heart and compensation. When a case manifests cardiac dilatation and inadequacy, the matter is a serious one and assumes a serious aspect. When chronic nephritics do not do well, it is because the heart has begun to fail. I think this matter should also be carefully considered with reference to the balneology, and this was touched on by Dr. Ransom. With regard to the use of purgative waters, sodium chloride is objectionable where we have a sodium chloride retention, but all cases do not manifest this retention. I believe purgative waters in certain cases are of great value by flushing out the intestinal tract, and thus ridding the system of toxins and preventing intestinal toxemia. Purgative waters also lessen abnormal pulse tension. The attention of the doctor must be riveted on the blood pressure. It is when this is abnormally high that it threatens cardiac adequacy.

DR. C. L. MINOR, Asheville: As to the use of hot dry air, it should be used oftener. An electric light apparatus, such as one mentioned, must be inconvenient and could not be used where no electric current had been placed in the house. We can with an alcohol lamp, barrel hoops and a tin rectangular pipe, make a very excellent hot-air bath. I cover over the hoops with three or four blankets and place the pipe in the foot of the bed. As far as therapeutic success is concerned, I find they do better with this than with the wet bath. Catharsis should not be left out of the treatment in any such case. We can thus give the kidneys absolute rest. Regarding the point that milk is a surrogate for a large amount of water, we can cut down the amount of water. If we count our milk in, we can cut down the water. As regards altitude of 2,500 feet, I have never seen any harmful influence from the altitude itself. I do not think that in winter nephritics should go to any mountain resorts.

DR. JAMES B. WALKER, of Philadelphia, said that in acute intense engorgement with high tension of the blood vessels, the excessive use of water is objectionable, but as soon as the kidney secretion begins, water is a great aid. It should be withheld in anasarca and hydrops.

DR. BOARDMAN REED, Philadelphia: No mention has been made of the frequent inadequacy of the stomach to empty the large amount of water or milk prescribed. The stomach must be strong, and not dilated in order to empty itself; and, as there is no absorption from the stomach itself, this fluid must be propelled on into the intestine before it can be absorbed. We frequently have dilated stomachs in these cases. In cases of nephritis, caused by intestinal toxemia, the latter is very often due to some serious fault in the stomach, especially atony or dilatation.

Dr. Guy Hinsdale, Hot Springs: I had not intended to neglect the mineral waters in the treatment of nephritis. We should use those containing magnesium sulphate or Rochelle salts. The Spanish and Austrian waters are heavily loaded with magnesium sulphate.

Dr. J. H. Pratt, Boston. The danger in chronic interstitial nephritis is from cardiac insufficiency rather than from renal insufficiency. I have used the carbon dioxide baths in this class of cases, but in a small class of pure chronic parenchymatous nephritis the danger is from renal insufficiency. I should like to make a plea for more attention to the electric light bath. Compared with the hot-air bath, sweating occurs at a lower temperature, and it can be continued a longer time. The perspiration is greater than in a hot-air bath. I have never seen a patient who did not prefer an electric light to a hot-air bath.

Dr. S. D. Risley, Philadelphia: In my own special field the opportunity for the study of kidney affections is relatively limited. My cases can be embraced in two distinct classes. The first group are those which I have seen overlooked for the simple reason that the disease is in its incipiency. I find flame-shaped retinal hemorrhages, and a too red optic nerve, the retinal arteries with gray white borders, suggesting early arterial sclerosis. The urine has an invariable high specific gravity, there is an intermittent albuminuria and both hyaline and granular casts are found. The urine will be free from albumin for the most part, but daily and repeated examinations of the urine will discover the presence of albumin. To my mind this is the incipient stage of some forms of nephritis which are under discussion this morning, and which the ophthalmologist will see before the patient or doctor recognizes the case. In these cases, having corrected the intestinal conditions with purgatives containing magnesium sulphate and having corrected the diet, water in abundance has been useful. In the other class of cases the picture is different. Already the speedy carrying out of the fatal mandate is seen. Patients complain of nocturnal or morning headaches and scanty or abundant urine with albumin and low specific gravity; the retina is edematous, enormous snowbank swelling and innumerable flame-shaped hemorrhages are seen all over the eye ground. In these cases there is more or less cardiovascular disturbance, a dry skin, marked nervous irritability and insomnia. In my judgment the accepted use of water in any form is injurious. The headaches will increase, the insomnia increases, the eye symptoms are aggravated, and in one case, following the water régime, I saw sudden deafness, and saw a complete filling up of the tympanic cavity, which was removed by using the Eustachian catheter. In these cases the free use of salt water is injurious, but dry heat is of great benefit and I have used it a great many years; where we have the electric current installed, we need nothing else. In one case I made a tent of the bedclothes and put over it the ordinary spread which is impervious; I placed a sixteen to twenty-five candle-power electric lamp in the bed; the patient had not slept, and was very nervous and irritable. In ten minutes perspiration came on profusely, and in the bath the patient went to sleep, the kidneys began to secrete freely, and the patient went on to a happy and temporary recovery. This can be repeated daily or oftener. In many hospitals, dry heat is employed in all these cases. It is more beneficial than the hot wet pack. After the skin has acted freely we can employ a skimmed milk diet and distilled waters, with or without carbonic acid, may be safely employed.

Dr. W. F. R. Phillips, Washington: I have not much to add. We know so little of the etiology of the symptom-complex of chronic nephritis that it seems unwise to lay down any fast rules to be followed in every case. Every particular case, apparently, should be treated climatically or physiotherapeutically, according to our conception of its etiology, and the importance of the disordered conditions presented.

Dr. C. C. Ransom, New York: In relation to the question asked by Dr. Sewall, my feeling is that in cases of marked arteriosclerosis baths are contra-indicated. If they are used at all they must be used with the utmost care. Patents in whom there is high tension without arterial change are pre-eminently adapted for the baths. The class of waters which may be used with the best advantage in this class of cases are the sulphur waters, which have marked effect in restoring perverted metabolism. One of the most important factors to be considered in sending patients to a cure for renal disease is that they should be under proper medical supervision. It overbalances everything else. One of the great disadvantages in sending patients to Nauheim is the fact that, in most instances, it is impossible for them to receive proper medical supervision, because of the great numbers of patients that the prominent physicians there attempt to see each day.

Dr. Philip Marvel, Atlantic City, in closing: I have been much pleased with the discussion pertaining to the renal aspect of the papers, but somewhat disappointed as to that which to me seems more important, *viz.*, the arterial aspect. Dr. Babcock has discussed the latter feature more than any one else. It seems to me that we must take into consideration that many cases of renal disease are secondary to cardiac disease as well as the reverse. If we take these cases of renal disease, whether they are primary or secondary, that are accompanied by myocardial changes, *i. e.*, in which the heart may be dilated, or where there may be a hypertrophy accompanied by arterial disease, we have two distinct propositions. In the former we need to support the heart in its action, and in the latter restrict or control it. In these we have two questions which require the opposite sort of treatment. I want to emphasize one point in the use of hot water in cases where the heart is weak and flaccid or overworked. In these cases the application of hot water too prolonged or a degree of temperature too high is injurious. You may use hot water at a temperature of 102° or 104°, if you use it as a contact stimulation, but don't prolong it. Cold water may be used in these cases for its primary and secondary influence, but must be used carefully and with a knowledge of what you expect to do with it. Regarding Dr. Sewall's question which Dr. Ransom answered in part, I will answer another part of it. There is often a high tension pulse where there is no arterial sclerosis. Hare has recently written a valuable contribution, where we have a decidedly high tension with little or no arterial change. My attention has been called not infrequently to cases where we have a nervous tension, and with these cases I have found the immersion warm bath prolonged for eight or ten minutes followed by a rain shower for about five or six seconds of great advantage. The neurasthenic element is present in these cases, and we have no remedy better for the relief of reflex disturbances than the application of varying temperature and mechanical force.

The association adjourned at 12.10 p.m., to go into business session.

DR. J. H. ELLIOTT, of the Muskoka Cottage Sanatorium, Gravenhurst, Canada, read a paper on the

MORTALITY FROM TUBERCULOSIS IN THE NEIGHBORHOOD OF SANATORIUMS.

The figures of Roempler for the village of Goerbersdorf, for Falkenstein, and for Rutland, Mass., were cited. Dr. Elliott showed that for ten years immediately before the establishment of the Muskoka Sanatorium there was a total of 18 deaths from pulmonary tuberculosis in Gravenhurst; the average population was 1,550, giving a rate of 11.6 per 10,000. During the ten years of the presence of the sanatorium there have been 21 deaths in the town, exclusive of the sanatorium; the average population was 2,165, giving a rate of 9.7 per 10,000. In the ten years 1,700 patients have been treated in the two sanatoria, which are two miles and one and a half miles from the town. No case of consumption in town or district can be traced to the sanatorium's presence; the sanatorium is a benefit to the town and the farmers of the district; there are no empty houses to be had; there is more business down in Gravenhurst to-day than ever before; the population has increased in ten years from 1,848 to 2,482 and the assessment from $266,750 to $423,945, or 59% in nine years.

DR. IRWIN H. HANCE, of Lakewood, N. J., reported a

CASE OF EMPYEMA OF LONG STANDING; OPERATION OF SIMPLE INCISION; RECOVERY WITHOUT SUBSEQUENT RESECTION,

and presented the patient two years after the operation. He is thirty-two and of good history, never having been ill until he had an attack of extensive boils, accompanied by constant pain in the left side. He grew worse and was considered to have consumption. Dr. Hance then saw him in a distant place in the country and plunged a scalpel between his seventh and eighth ribs and evacuated three or four pints of pus. Drainage tubes were inserted and removed in five months. Recovery is complete. The patient was examined by those present and was apparently in the best health.

DR. W. G. SCHAUFFLER, Lakewood: I was with Dr. Hance when the incision was made. The patient was moribund, and it did not seem that he could live half an hour. The doctor resorted to stimulation, and within ten minutes after the pus was started his condition began to improve, and within half an hour it was apparent he was going to get well. All his functions improved rapidly and by the middle of the same evening he was apparently out of danger.

DR. S. G. BONNEY, of Denver, said that the mere fact that Dr. Hance had a good result without resection is no argument against resection. In tuberculous cases the indications for treatment are not necessarily evacuation and drainage. It depends on whether there are chills, sweats, fever and symptoms of sepsis. He lets the purulent effusion alone unless there are fever and sepsis or cardiac and respiratory embarrassment from pressure. A case was cited in which recovery took place after resection of a rib. Dr. Bonney practises aspiration if there is embarrassment, but in an ordinary case of pleural effusion in tuberculosis he would not aspirate, for no matter how careful the technique and with a new needle a serous effusion will probably be converted into a purulent one. If not necessary do not aspirate.

DR. W. D. ROBINSON, Philadelphia: I would like to have the subsequent history of the patient. It has been my experience that these cases within five years develop a rapid tuberculosis.

DR. E. L. SHURLY, Detroit: In our section of the country we meet with a large number of cases of chronic lung disease which are of this character, and we are accustomed to operate on them. A number, of course, die because we usually operate on nearly all of them. We open them up no matter how nearly moribund they are and it is very good that we do. In the old cases it is my opinion that the majority may have "sanious pus." I congratulate the doctor on getting such a good result from his case. It is true that the nutrition is so interfered with, and also the circulation, that many of them do die of tuberculosis or sarcoma. I have always taken out a piece of one, two or three ribs. Of course there is some shock and some risk; but "the game is worth the candle." I have recently had three such cases as the doctor's, due to mistaken diagnosis. Fortunately all three recovered. Sometimes, however, more than half such cases die. I feel, however, that these people ought to be given a chance and I take the responsibility, and the results so far have justified that policy. You will find a lot of cases of pleuritic adhesions and such chronic lung disease that might be saved by operative procedure, but they are often allowed to go on, and have their lives frittered away by leaving them to nature alone.

DISCUSSION.

DR. C. L. MINOR, Asheville: Had you examined the sputum?

Dr. Hance in reply said the sputum was negative as far as tuberculosis was concerned. It may have been streptococcus infection.

DR. HANCE, Lakewood: Of course the man's resistance was reduced by reason of his illness, and he could develop tuberculosis, but the patient is living in a good climate and works as a coachman, and as that gives him plenty of outdoor exercise, I have no fear.

DR. J. C. WILSON, Philadelphia: I agree with Dr. Bonney about exploratory puncture for diagnosis. It is a serious blunder. If you suspect the presence of fluid and cannot be sure by the ordinary methods of physical diagnosis, you should present the matter to the patient's friends and then aspirate, seeing that a sufficient quantity is withdrawn. If it is found to be pus, there are rare cases in which the removal of purulent effusion is followed by return to health. I want to take exception to some of the statements, concerning which I entertain a different view from that expressed by Dr. Bonney. Dr. Hance is right in this case; even though the patient was in the jaws of death, he let the fluid out. That was proper. If the doctors who handled the case before had at once recognized the condition and done the same thing, the patient would have been saved much suffering and would have had a better lung than he has, although what he has is a very good one, with some manifest pleural thickening. So soon as a pleural effusion is recognized, it is a proper thing to aspirate, so that the small serous effusion is not permitted to become a large effusion. Sometimes a single aspiration results in a cure; sometimes, though, even three operations are required; sometimes the patients are discharged within ten days. I know the traditions of the profession, that it is improper to aspirate a serous effusion in a tuberculous case, but if it is done early you save damage to the patient's lung. The lung never fully expands after prolonged pressure. I know it is true that in the tuberculous patient who has carried effusion a long time, the tuberculous process becomes more active after the withdrawal of the fluid, but where it is taken out early it does not take place. What I stand for is the early removal of the effusion.

DR. C. L. MINOR, Asheville: It is bad practice to allow a nonpurulent effusion, even though the patient be not septic, to remain in the chest. It is bad practice to leave pus in the thorax. I agree with Dr. Wilson that fluid in the chest is not by any means *noli me tangere*. With the proper apparatus we can aspirate from time to time and not turn a serous effusion into pus. Serous effusion in tuberculosis left in the chest may have a good effect on the lung. After its removal I have not found the tubercular process to start. In the case of a young lady I had it developed a bad process on the left side. A rapid effusion came on and the lung was compressed. I left the fluid in there until there was a small syncope. I removed it, followed by the re-expansion of the lung, and she has been in excellent shape since that time.

Lieut.-Commander Thomas Hiland, United States Navy: I rise to do honor to old Dr. Bowditch. He has passed and gone but his teachings I hear to-day. I was one of his boys. He taught us, and correctly, to aspirate where there was a suspicion of fluid. I would make one other point. There are accumulations in the chest which are not from the pleural cavity and they should be aspirated and removed. Many a person has been rescued by finding this abscess and its removal.

Dr. R. H. Babcock, Chicago: Both Drs. Bonney and Wilson are right. There are cases which demonstrate the truth of what Dr. Bonney said that when the fluid is withdrawn, the tuberculosis becomes acute. There are other cases in which permitting the fluid to remain has favored the cure of the tubercular process. I believe Dr. Wilson is right in the majority of cases when he says fluid should be withdrawn early. I do not think Dr. Bonney would maintain that in all cases of tuberculosis he would allow the fluid to remain. The subject is one which requires very attentive consideration and cannot be disposed of arbitrarily or on any one definite principle. The case must be considered as a case. With reference to exploratory puncture there is a danger of infection of the serous effusion and its conversion into pus, but I am not clear that where a serous effusion after puncture has become purulent it is always due to infection, because it is well known that a serous effusion can become purulent because of its richness in cellular elements. If the case is one in which I cannot make a diagnosis without, I make a puncture.

Dr. I. H. Hance, Lakewood: As to early aspiration, we may turn a serous effusion into pus. In reference to the treatment of an effusion if it is serous, aspirate only when we are obliged to. If it is pus the surgical procedures are the best to act upon; and, as Dr. Minor said, you thereby relieve the other organs from possible danger.

Book Reviews.

A Compend of Materia Medica, Therapeutics and Prescription-Writing with Especial Reference to the Physiological Action of Drugs. Based on the eighth revision of the United States Pharmacopeia, including also many unofficial remedies. By Samuel O. L. Potter, M.D., M.R.C.P., Lond., formerly Professor of the Principles and Practice of Medicine in the Cooper Medical College of San Francisco, author of "Materia Medica, Pharmacy, and Therapeutics," "Quiz-Compend of Anatomy," "Index of Comparative Therapeutics" and "Speech and its Defects"; late Major and Surgeon of Volunteers, United States Army. Seventh edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1906.

This small but compact book of two hundred and ninety-two pages will prove useful for the medical student. The subjects are well chosen.

Diseases of the Nervous System Resulting from Accident and Injury. By Pearce Bailey, A.M., M.D. 8vo. Pages xii, 627, with 94 illustrations. New York and London: D. Appleton & Co. 1906.

This is a second edition of the author's "Accident and Injury," published eight years ago, but it has been very largely rewritten and enlarged one half, so that it is practically a new work. The general plan of the work remains the same, and the greater part of the expansion consists of a much fuller account of the organic injuries of the nervous system. Of especial value is the section on the permanent results of head injuries, giving not only a digest of published statistics but the results of inquiries made in several of the New York hospitals. Chapters have also been added on traumatic insanity and insanity due to psychical shock. These do not merit as much commendation, as they are inadequate and fail to differentiate clearly between the different forms of mental disease and show the relation which injury may have to each. In fact, the author almost conveys the impression that "insanity" is a single disease. The work is, in the main, a valuable handbook for all who have to do with traumatic nervous affections, either in their surgical and neurological aspects or in their medico-legal relations. The author's judgments are in the main sound, and he is fair in his conclusions. The work, however, is somewhat superficial and in many instances the author has failed to make use of recent investigations. Symptomatology and treatment have at times been slighted in favor of more detailed discussion of etiology, so that certain chapters must be supplemented by examination of the special neurological handbooks. In the chapter on injuries of the cord, for example, the question of laminectomy is not fully discussed, and the symptoms of unilateral lesion are given as originally stated by Brown-Séquard, without any reference to the recent modifications in those statements made by later observers. A more detailed insistence on the importance of examination by a trained neurologist would tend to modify the general impression given by the chapter on malingering, which at present is somewhat misleading. After various statements as to the simulation of hysterical symptoms, for example, the author adds that hysteria is probably never simulated in America. It would furthermore be only fair, after dwelling upon the possibilities of fraud on the part of the claimant for damages, if the author also took note of the dishonesty so often practised by defendant corporations in the work of the claim agent, the introduction of perjured testimony by railway employees, the bribery of jurors and even the corruption of the judiciary.

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ETHER DAY AT THE MASSACHUSETTS GENERAL HOSPITAL.

On Tuesday, Oct. 16, Ether Day was observed at the Massachusetts General Hospital. The meeting was held in the amphitheater in which ether was first administered, and was presided over by Dr. John Collins Warren, a grandson of the surgeon who performed the first operation under ether as an anesthetic.

In his introductory remarks Dr. Warren insisted upon the desirability of keeping alive the memory of the introduction of ether into surgical practice. In 1896, it will be remembered, a jubilee commemorative of this event was held at the Massachusetts General Hospital, at which many speakers, both from Boston and elsewhere, bore witness to the beneficence of the discovery. The common tendency to forget dates and events of historic interest is a further incentive toward a regular recognition of the day. It was, therefore, deemed advisable not to allow the matter to rest with the celebration ten years ago, but to perpetuate its remembrance by yearly exercises of some sort.

This year marks the sixtieth anniversary, and it was, therefore, the more fitting that a special effort should be made to recall the events attending the introduction of ether. It added materially to the interest of the occasion that the exercises were held in the amphitheater in the old building of the Massachusetts General Hospital in which ether was first administered under the direction of Dr. Morton. As the hospital developed, this original amphitheater was given up, the seats removed, and the room used for various non-medical purposes. About ten years ago the desirability for historical reasons of restoring the amphitheater as far as possible to its original form impressed itself upon the trustees, with the result that the room as it now stands is very similar to the original amphitheater, and is again being used for medical purposes, though not for surgical operations. The original floor, for example, has been left.

Dr. Warren, at the conclusion of his remarks, introduced Dr. Albert N. Blodgett, of Boston, who showed some interesting photographs, taken by Mr. Hawes, of the early operations under ether. Dr. Blodgett also told the following anecdote: At the time of the first operation Mr. Hawes was invited to be present for the purpose of photographing the scene of the operation. He was, however, unfortunately, not accustomed to the sight of blood, became nauseated and was obliged to leave the amphitheater with the picture still untaken. At the conclusion of the operation, which had been entirely successful and had demonstrated the efficiency of ether, Dr. Warren sought out Mr. Hawes and presented him with the scalpel and probe used at the operation, together with his card. These mementos were carefully preserved by Mr. Hawes, and since his death have passed into other hands. Dr. Blodgett was able to secure them for this occasion, and showed for the first time to a general audience the original instruments used. It is much to be hoped, as Dr. Blodgett said, that these instruments may ultimately come into the possession of the hospital to be preserved, along with other objects of interest connected with the first administration of ether.

Following Dr. Blodgett, Dr. Warren introduced Dr. T. E. Francis, of Brookline, one of the few surviving eye-witnesses of the first operation. Dr. Francis spoke briefly in a reminiscent vein of the conditions prevailing before the use of ether and of his remembrance of the events associated with that period.

The meeting was adjourned, with a renewed expression of hope on Dr. Warren's part that the day might be more definitely recognized, not only here in Boston, but in other cities as well, in which ether is used and in which the historical spirit is not altogether dormant.

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LOWELL LECTURES ON MEDICAL SUBJECTS.

The course of Lowell Lectures has been announced for this winter, and is interesting from the medical standpoint in the fact that several of the courses are to be given by physicians, or on subjects bearing the closest relation to medicine. The general tendency, to which we have from time to time alluded, of presenting certain practical medical facts to the public in the form of semi-popular lectures, has evidently grown from year to year. That this tendency has a distinct educational value is not to be questioned. Signs are not lacking to show that the public at large is continually manifesting a keener and more intelligent interest in medical questions, and particularly in those which bear upon the large realm of public health.

The courses to which we wish particularly to call attention are, first, one of eight lectures by Dr. Pierre Janet, the exact program of which we publish in another column. This course concerns itself with the general subject of psychotherapeutics, a matter which is receiving wide attention at the present time in the medical world. It will be remembered that last winter Dr. James J. Putnam gave a series of largely attended lectures in this same course on certain common forms of nervous disorder. In this course Dr. Putnam touched upon many matters which bear close relationship to the topics about to be discussed by Professor Janet. Professor Janet will speak in French, but judging from the attention with which he was followed on a previous visit to this country, his audience will be large and appreciative. He is also to give a series of lectures at the Harvard Medical School on the general subject of hysteria, of which announcement is also made in this issue.

A second course of lectures, six in number, will be given by Dr. Charles Sedgwick Minot, James Stillman professor of comparative anatomy in the Harvard Medical School, on the subject, "The Problem of Age, Growth and Death." As is perhaps generally known, Dr. Minot has for many years been making a careful scientific study of the question indicated in his title, and he therefore speaks with the authority born of personal investigation on a subject which has a common interest to young and old. Following Dr. Minot's lectures, Prof. Russell H. Chittenden, of the Yale Sheffield Scientific School, will give eight lectures on "The Nutrition of Man." Professor Chittenden's work in this field is too well known to require detailed reference here. A summary of his results will unquestionably be listened to appreciatively.

As we suggested at the outset, it is certainly a matter of more than passing interest that questions, such as those to which we have alluded, should sufficiently interest an audience with no special claim to medical knowledge as to justify their presentation. It is a hopeful sign that the laity is willing to listen to the conclusions of science in fields ordinarily regarded as beyond the field of the popular lecture.

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MEDICAL NOTES.

Appointment of Madame Curie. — Madame Curie, wife of the late Professor Curie, and joint discoverer of radium, has been appointed to the professorship at the Sorbonne held by her husband at the time of his death. This is the first time that such an appointment has been given a woman. Madame Curie is expected to continue her work in the investigation of radium.

International Congress on Tuberculosis. — Notices have been sent to many physicians throughout the United States and are appearing in the medical and public press regarding an "American International Tuberculosis Congress" to be held in New York City Nov. 14–16 next, and an association known as "The American Anti-Tuberculosis League" which is to meet in Atlantic City next June at the time of the meeting of the American Medical Association.

It should be stated that the gathering in New York next November and the one in Atlantic City next June have no connection whatever with the International Congress on Tuberculosis authorized at the last session in Paris in 1905, which will hold its next meeting in Washington in 1908 under the auspices of the National Association for the Study and Prevention of Tuberculosis.

Lowell Lectures on Psychotherapeutics. —Dr. Pierre Janet, professeur de psychologie au Collège de France, directeur du laboratoire de psychologie de la Salpètrière, will give eight lectures in the Lowell Institute course, on Tuesdays and Fridays, at 8 p.m., beginning Oct. 23, on "Psychotherapeutics or the Applications of Psychology to Therapeutics." (La psychothérapie, les applications de la psychologie à la thérapeutique.) 1. "Résumé Historique." 2. "Principe de la Psychothérapie. Influence des Etats Psychologiques sur la Santé Physique et Morale." 3. "Psychothérapie Générale, l'Exhortation Morale." 4. "Les Méthodes Suggestives." 5. "Les Méthodes d'Isolement et de Repos." 6. "L'Education Motrice." 7. "L'Education de la Sensibilité, l'Æsthésiogénie." 8. "Le Relèvement de la Tension Psychologique l'Education de l'Emotivité."

Lectures on the Classical Symptoms of Hysteria. — A course of about fifteen lectures on "The Classical Symptoms of Hysteria" will be given at the Harvard Medical School, beginning next week, by Prof. Pierre Janet, of Paris, and continued until the last week of November. The lectures will be given on Monday, Wednesday and Thursday evenings, at 8 o'clock, Administration Building, Harvard Medical School, Longwood Avenue. The lectures will be open to all teachers and students of medical schools in Boston, to members of the medical profession generally, and to teachers of psychology. Advanced students of psychology may be admitted to the course upon the recommendation of their teachers. Such recommendations should be sent immediately to the Dean of the Harvard Medical School.

There will be no charge for admission to Professor Janet's lectures. They will be given in English.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Oct. 17, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 53, scarlatina 29, typhoid fever 48, measles 3, tuberculosis 42, smallpox 0.

The death-rate of the reported deaths for the week ending Oct. 17, 1906, was 18.19.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Oct. 13, 1906, is 178, against 199 the corresponding week last year, showing a decrease of 21 deaths, and making the death-rate for the week 15.41. Of this number 96 were males and 82 were females; 175 were white and 3 colored; 103 were born in the United States, 68 in foreign countries and 7 unknown; 42 were of American parentage, 112 of foreign parentage and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 44 cases and 1 death; scarlatina, 28 cases and 1 death; typhoid fever, 49 cases and 3 deaths; measles, 1 case and 0 deaths; tuberculosis, 38 cases and 15 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 17, whooping cough 1, heart disease 16, bronchitis 3 and marasmus 7. There were 19 deaths from violent causes. The number of children who died under one year was 34; the number under five years 42. The number of persons who died over sixty years of age was 46. The deaths in public institutions were 58.

There was 1 death reported from cerebrospinal meningitis during the week. No cases.

Typhoid Epidemic Traced to Milk. — After the investigation of the outbreak of typhoid fever, recently reported from the towns of Wellesley, Natick and Needham, the State Board of Health has reached the conclusion that the outbreak was due to infected milk. Although the evidence is not absolutely conclusive, it appears that the epidemic had its origin from a woman employee at one of the dairies concerned, with which other dairies have relations.

Needs of the Perkins Institution. — The Perkins Institution and Massachusetts School for the Blind in South Boston is, according to a recent report of the trustees, overcrowded with pupils. During the past year there have been three hundred and sixteen pupils in all departments of the institution. A new building will be imperatively demanded in the near future if the increase in pupils continues. It is an interesting fact that in the workshop maintained for the adult blind nearly $7,000 has been paid out in wages, for the most part to blind employees.

NEW YORK.

Dr. Woodbury's Resignation.— Dr. John McGaw Woodbury has resigned his position as head of the Department of Street Cleaning, to which he was appointed by Mayor Seth Low, five years ago, and in which he has been retained ever since. His selection as Street Cleaning Commissioner was due to the energy and ability as a sanitarian, which he had displayed while serving as an army surgeon during the Spanish-American War.

Suit against Employer for Contributory Negligence.— The administrator of the estate of E. N. Kirkbride, a railway employee who was killed last summer, while standing between two moving trains, has brought suit, at Trenton, N. J., against the Pennsylvania Railroad for $50,000 damages. This is the first suit to be filed in the state of New Jersey under the new Federal statute giving an employee power to sue an employer on the ground of contributory negligence.

Disinfection of Rummage Sales.— An example which might well be followed by similar bodies throughout the country has been set by the Board of Health of Bayonne, N. J., adjoining

Jersey City, in ordering the disinfection, before the sale, of all the articles to be disposed of in a "rummage sale" in one of the churches. It is stated that some time ago, an outbreak of smallpox resulted from one of these sales held in the Constable Hook section of the city of Bayonne.

Purifying Sewage. — The utility of the New York Bay Pollution Commission has just been demonstrated in a practical manner. A number of the large towns in Westchester County are about to construct, in co-operation, a great sewer to carry off the sewage of these places, and empty into the Hudson River at Yonkers, whose territory adjoins that of the city of New York, and the commissioner, through Dr. Soper, has sent a timely warning to the authorities having the work in charge, that under the present law, it will be necessary for them to include in their plans efficient means for the purification of the sewage before it is allowed to enter the Hudson. But for such interference, it is probable that this vast body of sewage would have been poured into the river in its filthy state, and have contaminated the water to an alarming extent.

Hereditary Insanity. — A melancholy instance of hereditary insanity has been brought to light in the application of the Misses Eugenia and Cecilia de Nottbeck to have their brother, Peter, and sister, Gabrielle, pronounced incompetent to manage their affairs. On Oct. 10, upon the evidence of three examiners in lunacy, the brother and sister were adjudged insane by a sheriff's jury at White Plains, the county seat of Westchester county. Both of them have been inmates of a private sanitarium at Fishkill, for a number of years, suffering from dementia, and their mother died insane in the same institution in August last. Mrs. de Nottbeck was a niece of the first John Jacob Astor, and the owner of an estate valued at $2,000,000, largely composed of property in New York City.

Contributory Negligence. — That a spectator injured at an automobile race cannot recover damages, because of contributory negligence, was the decision handed down on Oct. 10, by the New York Court of Appeals, in the case of Mrs. Louise Johnson, of New York, Borough of Richmond, who was hurt in the races on Staten Island in 1902, when a car of which the chauffeur lost control dashed into a crowd of onlookers, injuring several. She brought suit against the city of New York and the race authorities, and at the original trial was awarded by the jury a verdict of $5,000. The case was appealed, and the Appellate Division of the New York Supreme Court, after careful consideration, upheld the verdict. The defendants then took the case to the Court of Appeals, and the latter has reversed the judgment, with costs, holding that the special ordinance under which the race took place did not assume to authorize the operating of automobiles generally at a greater speed than that prescribed by statute, but permitted only specific persons to use the highway as a race course on a particular occasion. Hence, it was invalid, and the complainant was a participant in the commission of the unlawful act. Had the plaintiff, the Court held, been on the highway when she met with the injury, it would have been a different question. A new trial was ordered, and when the case comes up again, it will be decided whether or not the race was mismanaged and the racing board guilty of negligence. Mrs. Johnson's suit, it is said, has been made a test case for a number of the other sufferers.

Current Literature.

The Journal of Medical Research.

September, 1906.

1. Beebe, S. P., and Ewing, J.: *A Study of the So-Called Infectious Lymphosarcoma of Dogs.*
2. Adler, I., and Heusel, O.: *Intravenous Injections of Nicotine and Their Effects upon the Aorta of Rabbits.*
3. Anderson, J. F.: *Transmission of Resistance to Diphtheria Toxin by the Female Guinea Pig to her Young.*
4. Anderson, J. F.: *Simultaneous Transmission of Resistance to Diphtheria Toxin and Hypersusceptibility to Horse Serum by the Female Guinea Pig to her Young.*
5. Quackenboss, A., and Verhoeff, F. H.: *Multiple Myelomata, with Involvement of the Orbit.*
6. Wheeler, J. M.: *The Viability of the Bacillus Typhosus under Various Conditions.*

1. Beebe and Ewing call attention to a venereal disease of dogs, characterized by transmission through coitus and by the presence of nodular tumors of the genitals, multiple secondary growths of the skin, metastases in inguinal and abdominal lymph nodes, accompanied by cachexia and often terminating fatally. It seems to be essentially an infectious, malignant lymphosarcoma. The process has been transferred experimentally by implantations and injections of tumor cells, and even by rubbing the scarified mucosa with tumor cells; but finely comminuted tumor cells and filtrates of tumor emulsions fail to produce positive inoculations. No bacteria or spirochetæ have been identified with the process. Histologically, the tumors are probably round-cell sarcomata, true malignant neoplasms. The authors find that in each implantation some of the original tumor cells survive. Thus there is no strong basis for a parasitic theory as to the cause of the disease.

2. Adler and Heusel report that following repeated large intravenous doses of nicotine in rabbits, they have found calcified areas in the aorta. These lesions differ from human arteriosclerosis in that the fatty degeneration and ulceration of the intima, found in atheroma of the human artery, is not found. The authors conclude, however, that the lesions produced by nicotine and by adren-

alin, if not identical with those of arteriosclerosis, are at least closely analogous.

5. Quackenboss and Verhoeff report a case of multiple myeloma of the orbit, sternum and thigh, with a summary of what is known of the disease and a description of pathological findings. The process is characterized by changes in the bone marrow with albumose or Bence Jones' albumin in the urine. The disease is closely allied to sarcoma, but differs from it in that the growths appear simultaneously and do not form metastases. The skeleton only is attacked, especially sternum, ribs and vertebræ. Death usually occurs within two years.

6. Wheeler's studies of the typhoid bacillus have led to numerous conclusions, the most important of which are as follows: There may be marked multiplication of typhoid bacilli in sterilized well-water containing organic pollution. Diffused daylight is detrimental to typhoid bacilli in water. The optimum temperature is 20° to 22° C. (about room temperature). Not all saphrophytes act antagonistically to the bacillus typhosus; one which has been studied seems to favor its growth. In the process of freezing there is so marked a reduction of typhoid bacilli in water, that ice from ponds, even if subject to sewage contamination, is probably not a source of danger.

The Journal of the American Medical Association.

Oct. 6.

1. Bridges, W. O.: *Medical Fees in Country Practice.*
2. Rickets, H. T.: *Further Observations on Rocky Mountain Spotted Fever.*
3. Meyer, W.: *Osteoplastic Resection of the Costal Arch in Order to Reach the Vault of the Diaphragm.*
4. Bevan, A. D.: *The Diagnosis and Treatment of Tuberculosis of the Kidney.*
5. Cotton, A. C.: *Sodium Citrate in Infant Feeding.*
6. Southworth, T. S.: *The Trend of Pediatric Opinion Concerning the Artificial Feeding of Infants.*
7. McAllister, A.: *Whole Milk Versus Laboratory Milk.*
8. Woolley, P. G.: *The Prevalence of Intestinal Parasites in Siam.*
9. Coe, J. W.: *The Treatment of Purpuric Conditions and Hemophilia.*

2. Rickets reports his further progress in the study of Rocky Mountain spotted fever (tick fever?), on which he published an earlier article in the *Journal of the American Medical Association*, July 7, 1906. He has succeeded in maintaining the disease in animals by alternate inoculations into guinea pigs and monkeys. The inoculations can be made from blood or from organs, the latter seeming to carry the virus in amounts proportional to the blood contained. One attack in the monkey produced immunity to a second inoculation. The life cycle of the *Dermacentos occidentalis*, a tick suspected of carrying the infection, is described.

4. Bevan gives an historical sketch of the treatment of renal tuberculosis, calling attention to the increasing success which has attended nephrectomy. He maintains that in at least 90% of clinical cases the disease is primary in one kidney, and with early diagnosis can be cured. Ascending tuberculosis from lower portions of the urinary tract he believes to be rare; the infection practically always being carried to the kidney in the blood current from other foci of tuberculosis. The most common symptom is frequent micturition, without marked pain, unless the bladder is involved. The urine is often noticeably cloudy from pus; hematuria is noted as a symptom in about 25%. There may be pain in the kidney region, general evidences of constitutional disease, enlargement of the kidney. Simple pyelitis is comparatively rare, and often is the result of a suppurative process elsewhere; the acute onset and course distinguish it from tuberculosis. Tuberculosis, stone, tumor, polycystic kidney, and essential kidney hemorrhage are important to differentiate. In 60 cases of these conditions proved by operation, 28 were stone, 17 tuberculosis, 10 hypernephroma, 4 essential kidney hemorrhage, and 1 polycystic kidney. To distinguish these, after careful history and physical examination, first, several x-rays are taken; if no stone is demonstrable, stone is probably absent. The percentage of error in negative cases in this series of 60 was but 3%. In such negative cases the urine is examined for tubercle bacilli; these, however, were found in but half the tuberculous cases. Cystoscopy is next tried. When these three tests are negative and enlargement of the kidney exists, hypernephroma is the most probable diagnosis. A low cryoscopic reading argues for renal insufficiency from a disorder affecting both kidneys. In more than 50 of the 60 cases, the correct diagnosis was made. The treatment is nephrectomy where the process is limited to one kidney. Where this is impossible, nephrotomy and outdoor treatment may be indicated.

5. Cotton's paper advocates the use of sodium citrate to soften the curds formed from cow's milk mixtures in the infant's stomach. This it is easily proved to do *in vitro*, and the clinical experience of 112 published cases from four different authors confirms its beneficial action. It is indicated where curds are vomited or appear in the stools, provided that the indigestion is not due to an intolerance of fats. An aqueous solution is prescribed containing 1 to 5 gr. to the dram. The mother is directed to add just before each feeding enough of this to represent 1, 2 or 3 gr. of the citrate for each ounce of milk in the mixture. As toleration of milk is established, the amount of citrate given is gradually diminished to 1, ½ or ¼ gr. per ounce of milk, and finally it is discontinued, to be resumed only if symptoms return.

9. Coe advocates the use of calcium lactate in hemophilia and allied states, reporting cases in which it has been used. In chronic cases he gives 30 or 40 gr. once or twice a week, and larger doses in acute cases. He calls attention to the small number of blood plates present in his cases. In one he noticed an increase of these following the use of arsenic.

Surgery, Gynecology and Obstetrics, Vol. iii, No. 3.

September, 1906.

1. Rose, A.: *Atonia Gastrica in Relation to Cholelithiasis.*
2. Knapp, L.: *A Further Contribution Concerning Artificial Dilatation of the Cervix.*
3. Brown, S.: *Cæsarean Section Necessitated by Obstruction of Pelvis by Non-Pregnant Half of Bicornate Uterus.*
4. Cumston, C. G.: *Considerations on Some Mooted Questions Pertaining to Prostatectomy.*
5. Singley, J. de V.: *The Operation of Choice in Chronic Obstruction of the Intestine Due to Malignant Stricture.*
6. Rogers, P. F.: *A Case of Enormous Elephantiasis of Both Legs Surgically Treated.*
7. Beede, S. C.: *Report of a Case of a Lithopedion.*
8. Dührssen: *The Contest with Cancer of the Uterus.*
9. Lamborn, W. H.: *A Study of the Development of Extra-Uterine Decidua.*
10. La Roque, G.: *Malignant Disease of the Bowel — Chronic Intestinal Obstruction.*
11. Condon, A. P.: *The Treatment of Placenta Previa by Cæsarean Section.*
12. Williams, J. W.: *The Induction of Premature Labor and Accouchement Forcé in the First Five Thousand Labors in the Obstetrical Department of the Johns Hopkins Hospital.*
13. Coe, H. C.: *Infection of Ovarian Cystomata.*
14. Patton, C. L.: *Ovarian Cysts Situated above the Superior Pelvic Strait, Complicated by Pregnancy.*
15. Davis, E. P.: *The Choice of Methods for Dilating the Gravid Uterus.*
16. Dixon, A.: *The Truth about So-Called Maternal Impressions.*
17. Eastman, J. R.: *The Retention of Drainage Catheters.*
18. Cammidge, P. J.: *The Technique of the Examination of the Urine and Feces in Suspected Cases of Disease of the Pancreas.*
19. Wright, A. H.: *Directions for Nurse and Home Physician, Burnside Lying-in Hospital, Toronto.*

4. The advantages of the perineal prostatectomy from a review of the literature are found to be the following: *First*, the mortality is less; *second*, only one opening is made in the bladder; *third*, drainage is obtained from below, and no collection of the urinary secretion arises in the lower portion of the bladder; *fourth*, the danger of urinary infiltration is less; *fifth*, the entire operation can be conducted under the guidance of the eye; *sixth*, in

cases where it is important to save the ejaculatory ducts, this may be done. On the other hand, the suprapubic route presents the following advantages: *First*, there is no danger of injury to the rectum; *second*, severe hemorrhage is easier to control; *third*, the technique is much simpler. The author has been unable to find a report in the literature of any case of malignant disease of the prostate where the life of the patient was prolonged more than one year after removal of the prostate. The reason for this is the metastases produced, these occurring most frequently in the lumbar region of the spine, and then the femur, pelvic bones, the bladder and the skull. Malignant neoplasms of the prostate are probably the only contra-indications for prostatectomy. All patients should be operated on where an absolutely aseptic catheterization for any length of time is not possible. To this class belong those who cannot carry out the catheterization themselves on account of senile tremor, blindness, or some similar infirmity. In all instances where vesical calculi are present at the same time and result from the hypertrophy, operation should be done, otherwise recurrences of the calculi will take place. All patients who have cystitis should be operated upon, as should also all those in whom there is the slightest suspicion of malignancy and where the disease is apparently in its earlier stages.

6. Ten operations in all on the same subject were performed by the author for the relief of this striking condition. Large wedge-shaped pieces were excised, those whose axes were made at right angles to the bones proving the more effective. No delay in primary union was experienced. To absorb the large quantity of serum which oozed from the wounds during the first twenty-four hours after operation, large, hot, boric compresses covered with gutta-percha were used with great comfort to the patient. The leg circumferences have been reduced by ten or twelve inches, and the general health of the patient much improved.

10. Two interesting cases of malignant disease of the bowel are reported. In the first, obstruction was caused by cancer of the splenic flexure in a man aged fifty-two, in which operation was followed by recovery; in the second by sarcoma of the sigmoid in a boy of twelve, with fatal termination. The cardinal symptoms of malignant disease of the bowel are summed up as follows: *First*, habitual constipation, followed by a " causeless " diarrhea, and accompanied by recurrent paroxysms of intestinal colic; *second*, diarrhea, when the rectum and sigmoid are involved, more noticeable in the morning hours; *third*, rectal tenesmus when the lesion is limited to the lower eight or twelve inches of the canal; *fourth*, gastric symptoms are inversely in proportion to the diarrhea; *fifth*, intestinal evacuations are excessively foul, semi-fluid, with an excessive quantity of mucus and with blood, varying in amount from small microscopical to exhaustive hemorrhages; *sixth*, pruritis ani is a significant symptom, due to the irritating nature of evacuations.

13. Report of two cases of ovarian cystomata, the first infected with tuberculosis, the other with typhoid bacilli. A few similar cases are reported from the literature. Late relapses, fever of a hectic type, and persistent abdominal pain are the signs usually present. The surgical prognosis is good. The occurrence of such conditions points to the fact that an ovarian cyst should be removed without delay, especially when symptoms of infection arise.

17. A well-illustrated article showing the various methods of applying a catheter drainage.

British Medical Journal.

Sept. 29, 1906.

1. Mickle, W. J., Turner, A., Mettler, L. H., and O'Brien, J. D.: *A Discussion on General Paralysis.*
2. Dieffendorf, A. R.: *Etiology of Dementia Paralytica*
3. Mills, C. K.: *Cerebral Localization and the Study of Psychiatry.*
4. Crothers, T. D.: *The Insanity of Inebriety.*
5. Clarke, C. K., Meyer, A., and Rentoul, R. R.: *A Discussion on Dementia Precox.*
6. Farrar, C. B.: *Types of the Evolutional Psychoses.*
7. Rentoul, R. R.: *Proposed Sterilization of Certain Mental Degenerates.*
8. Schofield, A. T.: *Mind in Medicine.*
9. Dubois, Paul: *Rational Psycho-Therapeutics.*
10. Thomson, St. C.: *Cerebral and Ophthalmic Complications in Sphenoidal Sinusitis.*
11. Macfayden, A.: *Remarks upon the Pneumotoxin.*
12. Hunt, G. B.: *Rupture of Interstitial Tubal Pregnancy: Hysterectomy.*

9. Dubois believes that in treating nervous and psychic disorders, while much can be done by physical methods and hygeine, the greater part of treatment should be an education of the mind, not by artificial and circuitous methods such as hypnotism and suggestion on waking, but by processes of persuasion.

10. Thomson speaks of the frequency of suppuration in the nasal sinuses and the small amount of investigation done on the subject of cerebral infection from this source. He gives in detail two cases where this connection was established beyond a doubt by autopsy. In the first case the patient died from infection of the meninges from the right sphenoid sinus; the second was a streptococcal infection of the sphenoid sinus with purulent thrombosis of the cavernous and other sinuses. The symptoms of sphenoidal sinusitis are vague; there may be a post-nasal discharge, pain or neuralgia and fever with other general symptoms. He gives the bibliography of forty-two cases of cerebral and ophthalmic complications of sphenoid sinusitis.

Münchener medizinische Wochenschrift, No. 38.

Sept. 18.

1. Joseph, E.: *Early prophylactic Action of Passive Congestion on Infected Wounds.* (Continued article.)
2. Lindenstein: *Experiences with Bier's Passive Congestion.*
3. Aschoff, L.: *On the Formation of Cholesterine in the Gall Bladder.*
4. Fleiner, W.: *The Choice of Mineral Waters in the Treatment of Diseases of the Gastro-Intestinal Tract and Disturbances of Metabolism.* (Continued article.)
5. Polano, O.: *The Induction of Premature Labor in General Practice.*
6. Dührssen: *Vaginal Section.*
7. Busse, W.: *The Combination of Morphine-Scopolamine Injections with Spinal Anesthesia in Gynecological Operations.*
8. Benjamin, E., and v. Reuss, A.: *The Effect of Roentgen Rays on Metabolism.*
9. Fornet, W.: *The Precipitate Reaction.*
10. Meyerstein, W.: *The Cultivation of Typhoid Bacilli.* (*Typhusanreicherung.*)
11. Baldes, Heichelheim and Metzger: *The Influence of Great Exertion on the Circulatory System, Kidneys and Nervous System.*
12. Heineke, H.: *Embolic Necrosis of the Gluteal Muscles.*
13. Muscatello, G.: *Incarceration of the Appendices Epiploicæ in the Sac of Hernias.*
14. Siegert, F.: *A Case of Transmission of Measles to a Great Distance by Means of a Healthy Person.*
15. Rommel, O.: *New Model for an Incubator.*
16. Hocheisen: *Use of Scopolamine-Morphine Injections in Labor.* (Concluded.)

2. Stasis hyperemia applied to various forms of suppuration and inflammation has given improvement in the end results in nearly all the cases treated. It must not be considered a cure-all, however. In its application care must be taken not to adjust the bandage too tight; the best index of this being the sensation of the patient. It should not cause pain.

3. Aschoff believes that infections of the gall bladder are not the exclusive cause of formation of gallstones. He studied the formation of cholesterine by means of animal experimentation on the gall bladder, and found that when the bile was excluded, no cholesterine could be demonstrated in the cells of the mucous membrane. He demonstrated, however, that these cells can absorb fat in large amounts when introduced into the gall bladder. By means of the polarization-microscope he detected the presence of a mixture of cholesterine with neutral fats in the lymphatics of the gall bladder. To explain these facts he propounds the hypothesis that the epithelial cells split up the combination of fats with cholesterine, and

return the latter to the bile, while the former pass on into the lymph. He confirms the observation of Naunyn that the cells give off myeline forms, but considers these to be not a product of the cells but absorption products from the bile.

9. Fornet describes a new method for the early diagnosis of typhoid by means of his precipitate reaction (Pracipitatreaktion). It is based on the following considerations: the serum of a patient infected with typhoid contains a specific precipitinogen; the serum of an animal immunized with the filtrate of typhoid cultures contains a corresponding precipitin; when the two are brought together a characteristic precipitate results. Using the serum of rabbits immunized in this way, he was able to obtain a positive reaction early in the disease in six patients, in all of whom the Widal reaction was negative at that time. The diagnosis was confirmed by blood cultures.

10. A distinct advance in the cultivation of typhoid bacilli from the blood was made by Conradi and Kayser, who introduced the method of adding ox gall to the blood to produce a more abundant growth. Meyerstein shows that the good results are due to the presence of salts of the bile acids and recommends the use of these instead of ox-gall.

11. The authors describe the effects on the participants in a sixty-five-mile walking-contest. They found acute dilatation of the heart, and signs of irritation of the kidneys (albumin, casts and blood in the urine) in many cases. The blood pressure was lowered and there was an average loss of four pounds in weight. The knee-jerks were diminished and in one case abolished. Nearly all showed nystagmus. (These observations are very similar to those made in Boston on "Marathon" runners.)

12. Heincke reports an interesting case in which, following an appendix operation, there was embolic necrosis of almost the entire gluteus maximus; there was also cerebral and pulmonary embolism. The patient recovered.

13. Muscatello reports two new cases of incarceration of the appendices epiploicæ within crural and inguinal hernias respectively, and discusses the literature. The appendices originated from the sigmoid flexure and one of them had become detached from the intestine. The symptoms were local pain, without vomiting or intestinal obstruction, and could not be distinguished from those of incarceration of the omentum, the appendix or of a Littré's hernia.

16. From an experience of one hundred uncomplicated deliveries in which scopolamine-morphine anesthesia was used Hocheisen makes a distinctly unfavorable report. The poisonous qualities of the drugs as well as their uncertain action should forbid their use in obstetrics.

Deutsche medizinische Wochenschrift, No. 38.
Sept. 20.

1. v. Bruns: *Radical Operation in Carcinoma of the Larynx by Means of Thyreotomy.*
2. Romberg, E.: *Remarks on Neurasthenia and Its Climatic and Balneotherapeutic Treatment.*
3. Curschmann, H.: *Vasomotor Spasm in Angina Pectoris.*
4. Müller, O.: *Methods of Testing the Function of Arteries.* (Continued article.)
5. Döderlein: *The Fight Against Carcinoma of the Uterus.*
6. Sarwey, O.: *Is Morcellement of Ovarian Tumors Permissible?*
7. Baisch, K.: *Lumbar Anesthesia in Gynecology and Obstetrics.*
8. Schleich, G.: *Primary Tuberculosis of the Uveal Tract.*
9. Schmidt, W.: *A Case of Pancreatic Fistula Following Operation for Hemorrhagic Pancreatitis.*
10. Schmidt, W.: *The Occurrence of Metallic Quicksilver in the Human Body.*

1. Great advances have been made in the operative treatment of cancer of the larynx of late years, partly by means of earlier diagnosis, partly through better technic. Thyreotomy has better results to show than total extirpation, and is the operation of choice in the early stages of cancer of the interior of the larynx. The functional results are excellent, respiration is unimpeded and the voice is often preserved. Semon, of London, has reported 20 thyreotomies with but 1 death and 17 cures of from one to thirteen years' duration; a remarkable showing. Bruns has performed this operation in ten cases without a death; seven were free from recurrence two to fifteen years after. He uses scopolamine-morphine anesthesia followed by local anesthesia with novocaine combined with adrenaline. He discards preparatory tracheotomy and operates in the Rose position. Bruns condemns the laryngoscopic operation under all circumstances.

2. Romberg pleads for a more exact use of the term neurasthenia and would exclude on the one hand various psychoses, especially the psychopathic constitution; on the other hand certain conditions of the viscera such as constitutional cardiac weakness and some abnormalities of the functions of the stomach. Neurasthenia is nervous exhaustion and requires, in the first place, rest, preferably in the open air, and, later, exercise of the nervous functions; the latter is to be accomplished by hydrotherapy and a stimulating climate (seashore or mountains). The patient should become accustomed gradually to resume an active life. A simple plan of treatment consistently carried out is better than a multiplicity of methods. Many of these patients belong in a sanatorium.

3. Curschmann describes two cases of true angina pectoris with coronary sclerosis, accompanied by vasomotor phenomena of the extremities and ending in sudden death. The attacks of angina were accompanied by pains, numbness and local asphyxia in the hands, rarely in the feet, followed by redness and heat. These cases correspond to the angina pectoris vasomotoria of Nothnagel, which he described as a purely functional disease, and show that vasomotor spasm at the periphery may be a symptom of true angina. Curschmann reports also a very interesting case in which the attacks of angina were accompanied by transitory blindness of the right eye, which he attributes to spasm of the retinal artery.

5. Döderlein quotes statistics showing the superiority of the abdominal over the vaginal route. The radical operation with total extirpation of the uterus and removal of all diseased tissue has given, in the author's hands, a cure of four years' duration in 16% in carcinoma of the cervix. This includes all cases entering his clinic whether operable or not. Wertheim reports 20% of all cases well at the end of five years. Carcinoma of the fundus bears a far better prognosis, because it does not form metastases so early; cure may be obtained here in from 75% to 100%.

6. Sarwey shows by analysis of 190 cases from the Tübingen Clinic that the reduction in size of ovarian tumors by puncture or incision does not lead to "implantation" metastases. Pfannenstiel's objection is, therefore, answered, and this method is to be preferred on account of the small size of the incision required. The long abdominal incision is reserved for large solid tumors. The vaginal route was followed in all cases where the tumors were of moderate size, partly cystic, movable and easily reached from below; larger cystic tumors were removed through a transverse suprapubic, or a short longitudinal incision.

7. The disadvantages of lumbar anesthesia are: (1) Paralysis of the respiration; (2) consecutive headache and vomiting, which occur fairly often, and (3) preservation of consciousness, which is undesirable in long operations. Its advantages consist in the freedom from danger to the heart and lungs. It is especially adapted to gynecological operations because the region of the pelvis can be rendered anesthetic with the smallest doses. Danger to life can be avoided by placing the maximum dose at 1–10 gm. for novocaine, at 5–100 gm. for stovaine and tropacocaine; if a previous scopolamine-morphine injection is made these doses will suffice and the patient is put into a semi-conscious condition. Small amounts (5–10 gm.) of ether may be desirable to supplement the action of these drugs. Patients with a tendency to headache or vomiting of a nervous type should not be subjected to lumbar anesthesia. In obstetrics lumbar anesthesia is very good for operative measures, but should not be used to quiet the pains of labor.

8. Schleich states that tuberculosis of the uveal tract (iris, ciliary body, choroid) is much more frequent than is commonly supposed; 37% of all cases of uveal disease in the Tübingen eye clinic in 1905 were tuberculous, just twice as many as the cases of syphilis. It occurs in three forms, *viz.*: (1) Disseminated nodular tuberculosis; (2) tuberculous tumor formation; (3) simple tuberculous inflammation. In the diagnosis the history and the results of an examination of the rest of the body are important; a general reaction to tuberculin is significant, but only a local reaction is conclusive, and this may be lacking in cases certainly tuberculous. The prognosis is doubtful, for blindness or extension to other parts of the body may follow. The general hygienic and dietetic treatment is important. Schleich (like v. Hippel) has had excellent results from the use of new tuberculin.

Miscellany.

THE MASSACHUSETTS MEDICAL SOCIETY. COUNCILLORS' MEETING.

A meeting was held at the Medical Library, Boston, on Wednesday, Oct. 3, 1906.

The meeting was called to order at 12 noon, by the President, Dr. George W. Gay; 94 Councillors were present.

Delegates to other State Medical Societies were appointed as follows: Vermont, Drs. H. D. Arnold of Boston; I. S. F. Dodd of Pittsfield. New York, Drs. J. L. Hildreth of Cambridge; W. H. Pomeroy of Springfield.

The Committee on Membership and Finance reported, recommending that the resignations of several Fellows be accepted; also, that others be placed on the retired list, and that others be deprived of the privileges of membership for nonpayment of dues. Their report was accepted and their recommendations were adopted.

The secretary reported the following vote from the last annual meeting of the Society:

"That the Society recommends the appointment of a committee by the Councillors at their next meeting in October, with instructions to redraft the existing By-Laws, to suggest such changes therein as the interests of the Society seem to require, and to report thereon at the meeting of the Council in February, 1907.

"*Voted,* That a committee of five be appointed to revise the By-Laws in accordance with the recommendations of the Society." The following were appointed to constitute the committee: Drs. E. B. Harvey, F. C. Shattuck, F. W. Goss, G. de N. Hough, E. B. Peirson.

Dr. Cabot spoke of the desire on the part of the American Medical Association, that a committee on Medical Education be established by each State Medical Society, and in furtherance thereof, offered the following, which was adopted:

"*Voted,* To establish a Committee on Medical Education, to consist of three members.

"This committee is to be appointed in the same manner as the other standing committees.

"It shall be the duty of this committee to promote the cause of higher medical education in all possible ways. It may lend its assistance to the State Examining Board, and may co-operate with the Council on Medical Education of the American Medical Association, for the advancement of this object.

"It shall report to the Council each year at the October meeting."

The President stated, that to carry out the purpose expressed in this vote, he had appointed an *ad interim* committee, consisting of Drs. E. H. Bradford, H. C. Ernst and H. D. Arnold.

Voted, To confirm these appointments and to constitute them as the members of the committee.

Dr. Beverly MacMonagle, of San Francisco, Cal., was *nominated* for Honorary Membership in the society. This nomination was, in accordance with the By-Laws, referred to the Committee on Membership and Finance, to report thereon, at a subsequent meeting. He was not, as has been incorrectly published elsewhere, *elected* to Honorary Membership.

Correspondence.

O TEMPORA! O MORES! O VERITA!

Boston, Oct. 15, 1906.

Mr. Editor: As one who for many long years has been wont to look to your editorial columns as to a wise guide, not only in the practice of his profession, but also in the general ordering of his life, I confess to having sustained quite a shock in reading your views on health and diet as expressed in the last number of the Journal, these views being laudatory of the practice in a certain health resort on Lake Maggiore.

I have never hitherto gathered from any glimpses of the editorial mind such approval of asceticism. As some of us have grown older and have met with some small measure of worldly success, we have hoped to lay our hands more firmly upon the good things of life. And lo! now by these words of yours the cup seems dashed from our lips. Are there to be no more cakes and ale? Must we, indeed, follow you to the table spread only with lettuce, lentils and nuts?

The costume at Monte Verità, which you impliedly indorse, will add picturesqueness to the editorial sanctum, and one is almost tempted to fabricate an errand thither in order to see the occupants clad in "linen jackets, loose running knickers and sandals." But one is relieved to learn that with the approach of winter, velvet may be substituted for the linen and a cape thrown over the shoulders.

And no more of those meals, "good, but not sumptuous," whereat the average diner gains three pounds. And there shall be no more thirst. Even those fluids whose specific gravity is diminished by their gaseous content shall be eliminated, so that he that arises from the board shall be even as he that sat down.

But may we not hope that your expressed sympathy for this new cult is, after all, only the transient product of the repletion due to some such meal, and that the feeling may undergo revision, as did that of Omar:

"Indeed, indeed, repentance oft before
I swore; but was I sober when I swore?
And then, and then came Spring, and, rose-in-hand,
My threadbare penitence a-pieces tore."

One of the saddest results of this new dietetic propaganda would be that darkly hinted by your correspondent, — its votaries leave no progeny. And this is a result which we lovers of the Journal cannot abide.

Let those who incline to the apotheosis of the lizard remember his fate in the words of the poet I have just quoted: "The wild ass stamps o'er his head, but cannot break his sleep."

Truly yours,

Sybarita.

RECORD OF MORTALITY

For the Week ending Saturday, Oct. 6, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,268	475	Quincy	7	3
Chicago	566	205	Waltham	7	2
Philadelphia	402	108	Gloucester	5	0
St. Louis	—	—	Pittsfield	4	0
Baltimore	195	67	Brookline	7	1
Cleveland	—	—	North Adams	9	1
Buffalo	—	—	Chicopee	7	4
Pittsburg	—	—	Northampton	4	0
Cincinnati	—	—	Medford	10	3
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Hyde Park	4	3
Providence	66	29	Newburyport	—	—
Boston	227	70	Leominster	5	0
Worcester	48	16	Melrose	2	0
Fall River	38	21	Woburn	4	0
Cambridge	23	7	Marlborough	6	1
Lowell	29	9	Westfield	—	—
Lynn	23	10	Peabody	—	—
New Bedford	16	8	Revere	3	1
Springfield	18	8	Clinton	3	1
Lawrence	27	13	Attleboro	2	0
Somerville	20	13	Adams	2	0
Holyoke	14	9	Gardner	0	0
Brockton	13	3	Milford	8	2
Malden	16	4	Weymouth	6	1
Salem	19	4	Framingham	0	0
Chelsea	9	4	Watertown	1	1
Haverhill	9	2	Plymouth	—	—
Newton	7	1	Southbridge	5	2
Fitchburg	10	2	Wakefield	1	0
Taunton	7	3	Webster	—	—
Everett	6	5	Dedham	2	—

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 3, 1906.

Wertenbaker, C. P., surgeon. Extension of leave of absence granted Surgeon Wertenbaker for seven days from Sept. 22, amended so as to read for four days only. Sept. 29, 1906.

Wickes, H. W., passed assistant surgeon. Directed to proceed to Stapleton, N. Y., and report to the Medical Officer in Command for duty and assignment to quarters, upon being relieved from duty at Reedy Island Quarantine Station by Passed Assistant Surgeon W. A. Korn. Sept. 28, 1906.

Lavinder, C. H., passed assistant surgeon. Directed to proceed to Wilmington, N. C., and assume command of the Service, upon the arrival at Stapleton, N. Y., of Passed Assistant Surgeon H. W. Wickes. Sept. 28, 1906.

Hobdy, W. C., passed assistant surgeon. Granted leave of absence for ten days from Oct. 1, 1906. Sept. 27, 1906.

Stansfield, H. A., passed assistant surgeon. Relieved from duty at Baltimore, Md., and directed to proceed to Havana, Cuba, reporting to Passed Assistant Surgeon R. H. von Ezdorf for duty. Sept. 29, 1906.

Salmon, T. W., assistant surgeon. Granted leave of absence for seven days from Sept. 29, 1906, under paragraph 191 of the regulations.

McKeon, F. H., assistant surgeon. Granted leave of absence for one day. Oct. 3, 1906.

Fogarty, J. N., acting assistant surgeon. Granted leave of absence for one day, Sept. 18, 1906. Sept. 28, 1906.

Goldsborough, B. W., acting assistant surgeon. Granted leave of absence for two days from Sept. 29, 1906. Sept. 27, 1906.

Hicks, W. R., acting assistant surgeon. Granted leave of absence for ten days from Sept. 22, 1906. Sept. 29, 1906.

Watkins, McDonald, acting assistant surgeon. Granted leave of absence for one day. Oct. 3, 1906.

Allen, G. C., pharmacist. Leave of absence granted Pharmacist Allen for twenty-three days from Aug. 4, 1906, amended to read twenty-three days from Aug. 5, 1906. Sept. 29, 1906.

BOARDS CONVENED.

Boards of medical officers were convened to meet on Oct. 10, 1906, for the purpose of making physical examinations of applicants for cadetships in the Revenue-Cutter Service at the following named places: Washington, D.C., Assistant Surgeon-General J. W. Kerr, chairman, Assistant Surgeon J. W. Trask, recorder; Boston, Mass., Surgeon R. M. Woodward, chairman, Passed Assistant Surgeon B. S. Warren, recorder; New York, N. Y., Assistant Surgeon J. S. Boggess, chairman, Acting Assistant Surgeon R. Knowles, recorder; Philadelphia, Pa., Surgeon J. M. Gassaway, chairman, Assistant Surgeon McG. Robertson, recorder; Baltimore, Md., Surgeon L. L. Williams, chairman, Acting Assistant Surgeon, recorder; Chicago, Ill., Surgeon G. B. Young, chairman, Assistant Surgeon E. T. Olsen, recorder; Detroit, Mich., Surgeon Fairfax Irwin, chairman, Assistant Surgeon R. A. C. Wollenberg, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING OCT. 13, 1906.

F. M. Bogan, passed assistant surgeon. To the Naval Hospital, Washington, D. C., for treatment.

J. C. Boyd, medical director. To duty in command of the Naval Medical School Hospital, Washington, D. C.

J. P. DeBruler, assistant surgeon. To duty at the Naval Medical School Hospital, Washington, D. C.

W. C. Braisted, surgeon. Detached duty at the Naval Medical School, Washington, D. C., etc.; to duty as assistant to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

A. C. H. Russell, surgeon. To the Naval Medical School, and additional duty as member of the Naval Medical Examining Board, Naval Medical School, Washington, D. C.

D. H. Casto, acting assistant surgeon. Appointed an acting assistant surgeon in the U. S. Navy from Oct. 6, 1906.

M. Donelson, acting assistant surgeon. Appointed an acting assistant surgeon in the U. S. Navy, from Oct. 6, 1906.

G. Pickrell, surgeon. To the Bureau of Medicine and Surgery, Navy Department, Washington, for special duty.

J. P. DeBruler, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from Jan. 3, 1906.

F. W. S. Dean, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from January 26, 1906.

J. D. Manchester, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from June 10, 1906.

W. W. Verner, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from May 25, 1906.

W. H. Rennie, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from May 25, 1906.

J. S. Woodward, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from June 10, 1906.

F. G. Abeken, passed assistant surgeon. Commissioned a passed assistant surgeon in the U. S. Navy from July 10, 1906.

SOCIETY NOTICE.

New England Hospital Medical Society. — The New England Hospital Medical Society will meet at Hotel Nottingham, Huntington Ave., on Thursday, Oct. 18, 1906, 7.30 p.m. Section of Dermatology, Dr. Edith R. Meek, chairman. The relative seriousness of some skin diseases, in their relation to Health and Life Insurance, by E. R. Meek, M.D. Discussion: Drs. Culbertson, Hobart, Bond, Hamilton, Denig. Section of Dentistry, Marion L. Woodward, D.M.D., chairman. Oral Prophylaxis, by M. L. Woodward, D.M.D. (The health of the mouth.) Discussion: Alice G. Harvie, D.D.S., Concord, N. H.; M. E. Alleyne, D.M.D., Boston, Mass.; Drs. Hobart, Ermentrout, Alexander.

Blanche A. Denig, *Secretary.*

RECENT DEATH.

Dr. Robert P. Schmeltzer, of Brooklyn, N. Y., died on Oct. 11, at the age of fifty-four years. He was a native of Germany, and was graduated from the University of Würsburgh in 1879. Dr. Schmeltzer was a specialist in diseases of the eye, and was well known in German club and social circles. For several years he was the president of the Germania Club of Brooklyn.

BOOKS AND PAMPHLETS RECEIVED.

Massachusetts General Hospital. Home-Made Hospital Furniture. By Dr. Herbert B. Howard and Dr. Frederic A. Washburn, Jr.

The Surgical Clinic of To-day; Its Status and Methods of Teaching. By N. Senn, M.D. Reprint.

A Plea for the International Study of Carcinoma. By Nicholas Senn, M.D. Reprint.

Address.

THE CLASSICAL SYMPTOMS OF HYSTERIA.*

BY PIERRE JANET, M.D., PARIS,

Professor at the Collège de France; Director Psychological Laboratory Salpêtrière.

The first lecture of Prof. Pierre Janet presented a general introduction to the study of hysteria. After thanking the president and the professors of Harvard University who called him temporarily to teach among them, Professor Janet said that he wished to present a study characteristic of his native land, France. It seems to him that what has been most characteristic in France for a score of years in the study of nervous diseases is the development of pathological psychology.

Among these studies he determined on taking that of a particular nervous disease, hysteria, for historical and scientific reasons. If you look back to the time of the first works of Charcot, Ribot and their pupils, you will remark what was, by a kind of singular common understanding, the subject of all their works. Whatever the matter is, *maladies de la mémoire, maladies de la volonté, maladies de la personalité*, they always speak of hysterical phenomena. In addition to all these works, pathological psychology owes very much to the considerable movement concerning hypnotism. Now that the quarrels of other times are somewhat appeased, everybody will probably recognize the fact that it is only among hysterical patients that this hypnotism is to be found in any marked degree. If you consider even the somewhat adventurous authors who have sought to draw attention to particularly strange phenomena beyond the common powers of mankind, you will also acknowledge that always these studies had for their starting point hysteric phenomena. In a word, if any interest is given to the development of that pathological psychology which has been growing these twenty years, it ought to be recognized that this interest has for its object a special disease, hysteria.

Although such exclusive fondness for the study of this disease was rather exaggerated, there were certain practical reasons justifying this choice. The psychology of the hysteric patients, though full of difficulties and ignorance, is surely simple. While we can hardly connect together by general laws the different facts observed in melancholic delirium or in the delirium of persecution, on the contrary, the various accidents of hysteria are easily brought close to one another, owing to common characters. To this primordial reason are added practical reasons, and you will understand why the first studies were devoted to this kind of patients. The study of this disease is at the same time very important, both from the philosophical and scientific and from the medical and practical point of view. In our times, every well-educated man wishing to have an opinion on moral and philosophical problems ought to know something on this singular mental disease, for it has played a considerable part in the history of all religions and superstitions, and it still now plays a very important part in the most important moral questions.

This remark is even truer still if you consider the subject from a medical and practical point of view. It was a fashion for a certain time to say that hysteria was a rare disease, and by a kind of international irony people were willing to admit that hysteria was frequent only among the French women, possibly on account of their rather bad reputation. Unfortunately, American people are much like French people. All civilized nations are now the same, and it will soon be acknowledged that in this matter, as in many others, the other nations have nothing to envy France for. The physician will often meet with hysteric people, and he must be able to recognize quickly this disease in order to avoid making very dangerous blunders, which are too often medical crimes.

In order to be able to enter upon this study in a profitable manner, it is well to summarize in a few words the history of the studies which have been made on this disease. This history would be a very long one, for these studies began in the remotest antiquity, but it can be condensed if you adopt three great divisions. At first the study was anecdotal and descriptive; it was a period of curiosity and somewhat uncritical admiration. The second period, which in reality began very late, only in the nineteenth century, might be called the clinical period. Then physicians sought, above all, to give a medical character to this disease, to distinguish it from other maladies and to recognize the phenomena that pertain to it. It is a kind of clearing away and classification. The third period, which is contemporary, deserves to be called the psychological period, for, right or wrong, it is among mental phenomena that the interpretation of those innumerable phenomena has been sought these thirty years. Later, perhaps, there will come an anatomical and physiological period, but it does not yet exist.

With regard to these psychological interpretations we ought to be warned against their attractive simplicity; we must not be too easily satisfied with a vaguely mental explanation; we must even in psychological studies retain something of the precise method of Charcot in our search after the laws of the disease.

This research is very difficult because the symptoms are exceedingly numerous and because the limits of the disease are not clearly defined. Physicians, it is true, may agree about certain other diseases, when there is a distinctly visible objective phenomenon, a histologic lesion, or a microscopic organism characterizing such or such disease. But it is not the same with neuroses. To these is nowadays a hypothetic and conventional part in the description and interpretation of a mental disease. One must determine on making a necessary hypothesis which characterizes the teaching and the opinion of a master.

This will be done by describing the classical, the major symptoms of hysteria. This word "major," classical, indicates well that it is not intended to describe all possible hystericals, or all the shades the symptoms may present, but merely to show what, by hypothesis, characterizes the typical symptoms of hysteria. No doubt this hypothesis, these types of hysterical phenomena, are ephemeral, but they may have usefulness for some time.

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* Author's abstract report of lectures delivered at the Harvard Medical School, Oct. 17 and 18, 1906

II.

MONOIDEIC SOMNAMBULISM.

The several conceptions of an illness are characterized by the choice of the symptom first described and considered as the most important one. For a long time hysteria was considered chiefly as a physical disease, and consequently all convulsions in which there was loss of consciousness were given first importance. The attack should be considered a complex phenomenon that ought to be studied at the end of a course of lectures rather than at the beginning. To characterize at once this idea and to make hysteria understandable from the moral point of view, students are asked to place as the most typical symptom of hysteria a moral symptom, which is somnambulism, which is extremely frequent, though appearing under various forms that may more or less conceal it.

1. Among the various somnambulisms, the simplest form and the easiest to understand deserves to be called *monoideic somnambulism.* What is, then, exactly a somnambulist of this kind? We shall find a beautiful description of the popular conception about it in Skakespeare's tragedy of "Macbeth," and some passages of this play were read. The modern examples are much less dramatic, but they can be compared as to their most striking features. A certain number of cases are cited, but this is the most important one. We have here to deal with the common story of a young girl, twenty years old, whom we shall call Irène, whom despair caused by her mother's death has made ill. The crises last hours together and they show a splendid dramatic purpose. The young girl had the singular habit of acting over again all the events that took place at her mother's death without forgetting the least detail. She combines hallucinations, words and acts, and seems to play a very singular drama. At last the agitation seems to wear out, the dream grows less clear, and gradually or suddenly, according to the cases, the patient comes back to her normal consciousness; she takes up her ordinary business quite undisturbed by what has happened. That kind of delirium may vary over and over again in a thousand different ways. It is, however, very characteristic and in all mental pathology we shall fail to find other deliriums that are comparable to it.

2. If we follow that state from its starting point to the return of normal life, we notice a first very important period, the moment when somnambulism begins, characterized by a very visible abasement of mental activity. Afterwards there are psychological facts that come out in somnambulism. During the crisis itself, of opposite characters; first, a great unfolding of all the phenomena connected with a certain idea which develops itself to the utmost; secondly, absence of every sensation and every memory that is not connected with this delirium. After the crisis, during the state that appears normal, two other characters appear opposite in all appearance,—the return of consciousness of sensations and normal memory and the entire forgetfulness of all that is connected with the somnambulism. Let us remember all these facts that here seem very simple, and we shall afterwards see them unfolded in every hysterical phenomenon.

3. Let us take up the case of that young girl, Irène, who acts during her somnambulism the scene of her mother's death with such apparent precision. Let us watch her during the intervals of her fits, during the period she seems to be normal; we shall soon notice that even in that time she is different from what she was before. Though this remark seems amazing, this young girl is unable to tell us what brought her illness about, for the good reason that she has quite forgotten the dramatic event that happened three months ago. The loss of memory does not only bear, as is generally believed, on the period of somnambulism, on the scene of delirium; the loss of memory bears also on the event that has given birth to that delirium, on all the facts that are connected with it, and on the feelings that are related to it.

That very important remark may be extended to many of the other cases related and to several other cases to be spoken of later. How do such singular oblivions exactly coincide with the development of that extraordinary memory on the same subject that fills the somnambulistic state? That is the essential point. An idea, the memory of an event, for instance, the thought of a mother's death are groups of psychological facts, wide systems comprising all sorts of pictures and all sorts of tendencies. Those systems have their strength and their law of development peculiar to them, but at the same time they are connected with an infinitely wider system of which they are only a part, the system of our entire individuality. Generally the partial system remains the subject to the laws of the total system; it is called up only if the whole consciousness is willing and within the limits in which this consciousness allows it. To picture to ourselves what has taken place during somnambulism we may adopt a simple provisional résumé. Things happen as if an idea, a partial system of thoughts emancipated itself, became independent and developed on its own account. This conception made in the study of these simplest somnambulisms will be repeated in many different phenomena and will become more and more clear as the general subject is further developed.

According to the *Medical Record*, in Greece out of a population of 2,500,000 there are about 250,000 cases of malaria, with nearly 1,800 deaths.

Original Articles.

EPIDEMIC CEREBROSPINAL MENINGITIS. A STUDY OF ITS ETIOLOGY, DIAGNOSIS AND EPIDEMIOLOGY, BASED CHIEFLY UPON THE CASES OCCURRING IN WORCESTER, MASS.

BY ERNEST L. HUNT, M.D.,
Assistant Pathologist to Worcester City Hospital.

During the twelve months just past (April 1, 1906) it has been my privilege to study bacteriologically all but one of a series of eighteen cases of primary acute meningitis, occurring in epidemic form, in or in the vicinity of the city of Worcester, Mass. Most of the cases I have also observed clinically, and can vouch for the accuracy of all details hereinafter recorded in the few cases which did not come under my personal observation.

Unfortunately for the completeness of the research from an etiological point of view, there were no animals available for experimental purposes at our laboratory. Histological and cultural methods of study were, however, sufficiently fruitful to permit of drawing certain inferences as to the excitant of the disease process in each case studied and therefore the results obtained are worthy of record.

The disease first made its appearance in this vicinity in the adjoining town of Shrewsbury, March 30, 1905. The first case in Worcester proper appeared the following day. Eight more cases appeared during April, and two in May. During the summer months the city was free from recognized cases. November saw a single case, and five more occurred during the last week of December and during January of this year. Besides those included in the study there were several scattered cases which were diagnosed as the disease in question but are not here considered, as bacteriological confirmation of the diagnosis of meningitis was lacking.

The table below presents a summary of the cases.

BACTERIOLOGICAL STUDY.

The material used for bacteriological study was in all cases but one the cerebrospinal fluid obtained by lumbar puncture. In the one exception cultural methods were not carried out, the diagnosis not being made until autopsy by the medical examiner. In the other autopsied cases the examination of the spinal fluid had already been fruitful.

The fluid obtained by puncture varied in amount from 1 to 60 cc. In one case, almost perfectly clear; in others, but slightly cloudy; in the majority of instances it was turbid, often containing flakes of fibrin, and upon standing a few hours depositing a yellowish viscid coagulum, leaving a comparatively clear supernatant liquid. Two specimens were reddish brown from admixture with blood.

The technique for the examination of specimens is as follows:

I.

Coverslip preparations. — These are made by smearing a little of the sediment picked up by the platinum loop upon a cover-glass. Where the fluid is less cloudy, centrifugalization deposits the cells, a drop from the apex of the tube is withdrawn by a pipette and used for the coverslip preparation. Where the fluid is purulent in character, a loopful of the fluid without sedimentation gives a sufficiently dense smear. The preparations are then dried, fixed by heat or alcohol and ether (or not at all when the third method of staining is used), and stained by each of the following methods:

(1) Loeffler's methylene-blue solution, steamed a moment. This demonstrates any organism that may be present (not tubercle) and the cells fairly well. It is the best ordinary stain.

Table I. — General Summary of Cases.

Case No.	Age, Years	Residence	Onset.	Duration.	Complications.	Result.
1	15	Shrewsbury	March 30	36 hours	Nephritis	Dead
2	17	Walnut Street	March 31	5 days	....	Dead
3	1½	18 Lunelle Street	April 12	4 days	Albuminuria	Dead
4	27	12 E. Shelby Street	April 13	4 days	....	Dead
5	82	408 Main Street	April 16	18 hours	Pericarditis, due to meningococcus infection	Dead
6	68	37 Chrome Street	April 16	3 days	....	Dead
7	11	Granite Street	April 19	3 days	....	Dead
8	10	9 Fox Street	April 23	3 months	Deafness	Well
9	2 mo.	N. Ashland Street	April 25	2 days	....	Dead
10	2	Columbia Street	April 25	2 days	....	Dead
11	5	Whitney Street	May 14	10 hours	....	Dead
12	13	18 Langdon Street	May 20	18 days	....	Well
13	26 (?)	90 Winter Street	Nov. 11	3 months	Active hyperemia of kidneys. Temporary paralysis of right arm.	Improved
14	1	15 Kosta Street	Dec. 29	9 days	Status lymphaticus	Dead
15	18	Fisherville	Jan. 7	31 days	....	Well
16	20 mo.	59 Esther Street	Jan. 14	11 days	....	Dead
17	25 (?)	14 Rodney Street	Jan. 19	11 days	Double otitis media	Dead
18	16	25 Esther Street	Jan. 26	6 days	Adenoids. Left otitis media	Dead

Eighteen cases: 14 dead, 1 well, 1 well except for total deafness, 1 improved, 1 discharged from hospital apparently well, dying from probable recrudescence six weeks later.
Total mortality, 83.3%.

(2) Gram's method, counterstained with aqueous Bismark brown.

(3) Wright's modified Leischman blood stain made from Merck's medicinal methylene blue and Gruebler's water soluble eosin-yellow. It is used as for blood, except that it is diluted by the addition of 25% of methyl alcohol as recommended by Musgrave, or the preparation is given a quick bath in methyl alcohol after staining. This stains the cells beautifully, bringing out the minute structure of the nuclei and protoplasmic granules. The organisms are also well stained.

(4) Welch's capsule stain.

II.

Cultures. — In the cases cited these were made upon blood serum, ascitic-fluid agar (later cases only), plain and glucose agar, plain and glucose bouillon, and litmus milk. Potato and glucose bouillon containing 5% of glycerin were tried in some cases. At least 1 cc. of the fluid was used to inoculate each tube. In several cases an interval of several hours elapsed between the time of puncture and the making of cultures from the fluid obtained — a fact which probably accounted for some failures to obtain a growth.

In the fluid from two cases there were observed numerous diplococci, chiefly without the cells, though occasionally within the protoplasm of the leucocytes, having ovoid or lance-head shaped segments apposed end to end. These organisms were positive to Gram, and a capsule was demonstrable by Welch's method. No other organisms were seen in the smears. Cultures on blood serum developed as minute, round, elevated, transparent colonies in twenty-four hours. On agar, colonies were similar, but developed less rapidly. Bouillon was clouded in twenty-four hours. Litmus milk turned pink in twenty-four to thirty-six hours. Coverslip preparations showed Gram-positive, lanceolate diplococci in short chains. In these cases, therefore, it was evident that the pneumococcus of Fraenkel was the sole demonstrable excitant of the disease process.

In a third case an organism, morphologically the pneumococcus, was seen in the smears from the spinal fluid, but so few that Gram's test was indecisive. Cultures failed also, so that this case (No. 16) must not be considered in drawing conclusions as to etiology.

In fifteen cases the same organism was demonstrated in the coverslip preparations. In four of these, cultures failed to confirm the findings. In one no cultures were attempted. In three the organisms were definitely Gram-negative, while one was indecisive owing to the rarity of the organism. In the remaining ten the organism found presented the following morphological and cultural characteristics:

Occurrence. — Generally the organism lies within the protoplasm of the polynuclear leucocytes. Not infrequently, however, it is found outside the cells, especially where there are many organisms present. There is great variation in the number of organisms even in fluids from patients at the same period, and with like severity of disease. In Case 2 it was necessary to search several fields to find one. In Case 5 there was hardly a cell but contained several, and in some cells twenty or more could be counted.

Morphology. — In the exudates the organism occurs as a diplococcus with ovoid segments, the long axes of which are parallel, and the apposed sides somewhat flattened but never depressed. Each segment is a trifle larger than a single streptococcus pyogenes. There is considerable variation in size, however, many being larger than the general average. Often one segment of a pair is disproportionately large. A true capsule is not seen, although with Wright's stain there is sometimes an unstained halo around the intracellular organism. (See illustration 1 B.)

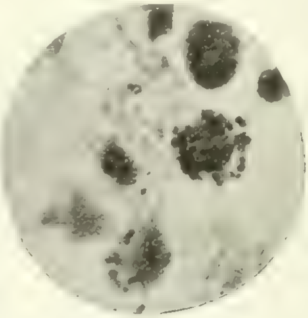

Fig. 1. (a) Meningococci in cerebrospinal fluid, × 1000

Staining reaction.— The organism takes ordinary aniline stains. Often, however, there are in the same fluid organisms which stain deeply and others which stain faintly. They decolorize with considerable readiness by Gram's method.

Cultural characteristics. — In attempting the cultivation of the organism, one is first impressed by its low vitality. Although the fluid may be rich in organisms, it does not suffice to inoculate a tube by the ordinary method of smearing a loopful of the fluid over the surface of the medium; a considerable amount (1–2 cc.) of the fluid must be poured, or the coagulum fished out and wiped over the medium.* Growth takes place only at body temperature. Moreover, as many tubes as possible should be inoculated. Upon blood serum, prepared according to the method of Mallory,[1] there appears after about twenty-four hours scattered over the surface of the serum few or many small, round, slightly elevated, nearly transparent colonies, which increase during the next twenty-four hours in size and density, until they attain a diameter averaging 2 mm., with opalescent borders and brownish gray centers. Near the surface of the condensation water the colonies coalesce, forming a soft grayish, viscid film. The growth is at its maximum in forty-eight hours, and in as many more is usually dead.

Upon agar-agar the development is slower

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* Best of all is the method suggested by Kalberlah (Berl. klin. Woch., No. 48, p. 1491) of receiving the fluid direct from the cannula into tubes of culture media, and placing them immediately in the thermostat. The importance of immediate inoculation and prevention of cooling was not realized by the writer in time to apply it to the series.

(thirty-six to forty-eight hours), and the colonies more striking because of the transparent medium. Generally, too, some of the colonies attain greater size than on serum, in one instance even 5 mm. in diameter. Such large ones are exceptional, however. More often there are one or two colonies of 2 to 3 mm. diameter surrounded by others much smaller. The fully developed colony is round, with somewhat wavy, but distinct margin. Its center is elevated and of a brownish color, while the periphery is grayish and translucent. The duration of life appears to be somewhat longer than on serum. In some instances new colonies appear about the old ones, due perhaps, to re-inoculation of fresh surface of the agar by accidental tilting of the tube, allowing the condensation water to wash up over the colony. In no instance were sub-cultures successful after the fifth day of growth.

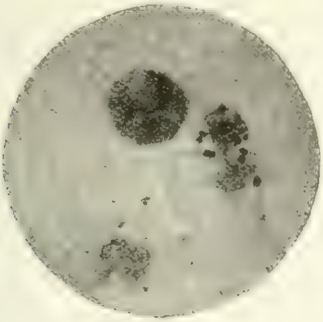

Fig. 1. (*b*) Meningococci in cerebrospinal fluid, x 1000

Agar-agar plus 25% of ascitic fluid affords a medium upon which the growth is more rapid and luxuriant than upon either of the foregoing, tiny transparent colonies appearing after eighteen hours, growing rapidly and tending to become confluent, forming a grayish, translucent film.

Upon glucose agar the characteristics are similar to those upon plain agar.

In bouillon, both plain and with the addition of glucose and glycerin, no growth occurred in any instance.

Litmus milk. — The organisms multiply readily in the medium, but its color is unchanged, and coagulation does not occur.

Cover-glass films from the colonies show medium and large diplococci, sometimes in tetrads, but never in true chains. Most of them are larger than either the pneumo- or streptococcus. The shape of the halves is less markedly ovoid. Some show flattening of apposed sides, while many are nearly spherical. There is marked variation in the intensity of staining, many being pale, while others are brightly colored (see illustration 2). With Gram's reagent decolorization is rapid and complete.

Although lacking confirmation by animal experimentation, the fact of finding this organism in pure growth in the meningeal exudate in twelve uncomplicated cases warrants the conclusion that it played an etiological rôle in those cases. The morphological, cultural and staining properties of the organism practically coincide with those of the organism isolated by Weichselbaum from six cases of cerebrospinal meningitis in 1885–86, and named by him "diplococcus intracellularis meningitidis." [2]

In five of these cases, in which the meningococcus was demonstrated in the spinal fluid, coverslip preparations and cultures were made from the secretions of the nose and nasopharynx. Gram-negative diplococci, sometimes intra- and sometimes extra-cellular were demonstrated in all cases in the former, but in no instance were they obtained in culture. Micrococcus catarrhalis was isolated in cultures from three.

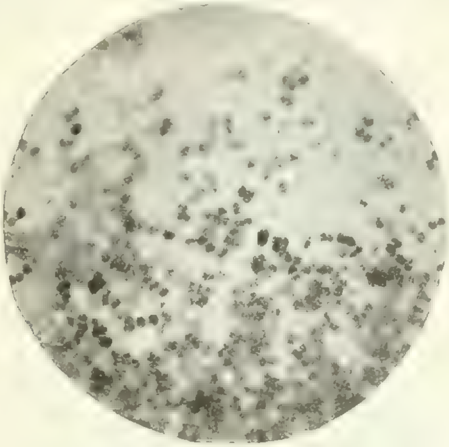

Fig. 2 Meningococci from pure culture, x 1000

In two fatal cases with positive findings in spinal fluid, cultures were made in agar-agar from the circulating blood, using every care to secure favorable conditions of growth. In one a colony of staphylococcus albus developed; the other was entirely negative. Coverslip preparations from the contents of the vesicles in two cases of herpes labialis showed no organisms.

The following table summarizes the findings in the cases, using the commoner term, "meningococcus" to designate the diplococcus intracellularis:

The work of Weichselbaum established the identity of the organism. He did not succeed in reproducing the disease in typical form in the lower animals, although it proved pathogenic when injected into the thoracic and abdominal cavities of mice, guinea pigs or rabbits. Local meningitis and encephalitis was produced by intradural inoculation of dogs.

After Weichselbaum, the next important contribution to the study of the etiology of epidemic meningitis was that of Jaeger in 1893,[3] who refuted the suppositions of Bodoni-Uffreduzzi, that the meningococcus was but a variety of pneumococcus, and by an investigation of an epidemic in Stuttgart proved his point by isolating an organism similar to that of Weichselbaum in twelve cases. He also isolated it from the nose of several cases. His description differed from the preceding, in that he considered the organism as

Gram-positive, sometimes encapsulated, and to have a tendency to form chains.

Heubner[4] in 1896 isolated the organism from spinal fluid obtained by lumbar puncture in nine cases, and succeeded in reproducing the disease by intradural inoculation of cultures in a goat.

Pettersen[5] found the organism in twelve cases occurring in an epidemic in Berlin in 1895–96, in the exudate around spinal cord.

Lord recovered it from the nose in a case of rhinitis, in which the only meningeal symptoms were headache and stiff neck.

At the outbreak of the recent epidemic, as was to be expected, there occurred a great revival of interest in the disease and its etiology. During the past two years several hundreds of cases have been studied in various parts of Europe and America, with the result that much has been added to our fund of knowledge of the bacteriology of the disease. Briefly summarized, the results of some of the more important investigations are as follows:

TABLE II. BACTERIOLOGICAL STUDY OF SPINAL FLUID.

Case No.	Time of Obtaining Spinal Fluid.	Macroscopical Character of Spinal Fluid.	Reaction of Organism Found in Smears to Gram.	Cultures							
				Blood Serum.	Ascitic Agar.	Plain Agar.	Glucose Agar.	Bouillon.	Glucose Bouillon.	Reaction with Litmus Milk.	Organism Present.
1	Autopsy	Cloudy	Decol.	+							Meningococcus
2	2d day	20 30 cc. Turbid	Decol.				+	0	0		Meningococcus
3	2d day	15–20 cc. Turbid	Decol.				+	0	0		Meningococcus
4	1st day	Turbid	Decol.	+			+	0	0	No change	Meningococcus
5	6 hr. P.M. Autopsy	Cloudy	Decol.	No growths							Meningococcus
6	1 hr. post-mortem	20cc. Turbid yellow	Stained	+		+		+		Acid	Pneumococcus
7	2d day	Turbid	Decol.	No cultures							Meningococcus
8	2d day	Cloudy	Decol.	+		+	+	0	0	No change	Meningococcus
9	2d day	5 cc. Turbid Bloody	Stained	+		+		+	+	Acid	Pneumococcus
10	2d day	Cloudy	Decol.	+		+	+		0	No change	Meningococcus
11	8 hr. P.M.	5 cc. Cloudy	Decol.	No growths							Meningococcus
12	2d day	10 cc. Sl. Cloudy	Decol.	+		+		0	0	No change	Meningococcus
13	3d day	2 cc. Turbid	Decol.	+	+	+	+			No change	Meningococcus
14	2d day	30 cc. Bloody	Decol.	No growths							Meningococcus
15	7th day	30 cc. Purulent	Decol.	+	+	+				No change	Meningococcus
16	6th day	60cc. Clear	Very rare organisms	No growths							Pneumococcus(?)
17	9th day	1 cc. Turbid	Very rare organisms	No growths							Meningococcus(?)
18	3d day	1 cc. Turbid	Decol.	+	+	0		0	0	No change	Meningococcus

Meningococcus,	14
Pneumococcus,	2
Doubtful,	2

Except for isolated cases the next important work was that of Councilman, Mallory and Wright,[6] in the Boston epidemic of 1898. In 31 of 35 autopsies the organism was found, both histologically and culturally; in another it had been found in life in the spinal fluid. The 3 remaining were chronic cases. In the spinal fluid of 55 cases obtained by lumbar puncture the organism was found, either by coverslip preparations or cultures or both in 38. By this investigation the characteristics of the organism were found to be in all respects similar to those described by Weichselbaum. The three points of difference in the description of the Jaeger organism were not substantiated. They also succeeded in reproducing the disease in a goat. In two cases, which were undoubtedly primary infections, the pneumococcus alone was isolated.

The results of the works just reviewed received general acceptance, and from time to time evidence of the occurrence of the organism, both in sporadic cases and in several small epidemics, was added. Several instances of its recovery from the circulating blood were reported. Also its isolation from the nose[11] and distinction from the micrococcus catarrhalis received attention.[10]

Bettencourt and Franca[12] examined fluid obtained by lumbar puncture in 271 cases, and found the meningococcus by smear and culture in all.

Berg[13] reported the New York epidemic from Jan. 1 to June 4, 1904, but more from a clinical and epidemiological point of view than from the bacteriological. It is mentioned here chiefly because he noted an increase in the death-rate from pneumonia at the same time. This led Preble, writing in *Progressive Medicine*, March 1, 1906, to dwell upon the possible identity of the pneumococcus and meningococcus, basing his arguments upon (*a*) the increase in deaths from pneumonia during epidemics of meningitis; (*b*) the frequency with which the two diseases are found together; (*c*) the "sudden onset, the chills, the leucocytosis, the herpes common to both diseases, are all suggestive of a close relationship." He dwells especially upon the herpes, which he considers as a striking bit of clinical evidence in favor of the identity of the two organisms.

Huber and Monroe [14] reported 120 cases treated by them at Gouverneur Hospital. Spinal puncture was performed in 51, and the meningococcus isolated from the fluid so obtained in pure culture in 44.

Draper [14] reported 47 cases, which came under his care at Bellevue Hospital. In the spinal fluid of 34 cases which he tabulated, pure cultures of the meningococcus were obtained in 29, and the organism demonstrated in coverslip preparations in all but one of these. There were pure cultures of the pneumococcus in three cases, and no organisms in the remaining two.

Lenhartz [15] demonstrated the meningococcus in 40 of a series of 45 cases, and believes it to have been the cause of the disease.

What is perhaps the most important investigation that has been instituted is that of the German government commission, under the general direction of v. Lingelsheim working in the hospitals in the affected districts of Silesia. Preliminary reports have been published by v. Lingelsheim [16] and Westenhoeffer,[17] arousing much comment by the latter's expressing doubt as to the etiological relation of the diplococcus intracellularis to the disease. The former found the meningococcus in the spinal fluid of but 138 of 243 cases. In but 76 of these were the organisms present in pure culture. In the remaining cases 21 showed no bacteria, and the rest showed various other organisms.

Schottmüller [18] criticises the results of v. Lingelsheim as showing evidence of faulty technique. He is quoted by Kalberlah [19] as obtaining positive results in 90% of his own cases. In the light of the investigations of so many others, it seems that so large a proportion of mixed cultures must be due to contamination. Kalberlah points out, and by simple experiment proves, that by allowing the fluid to stand before inoculating the culture medium, the chance of successful cultivation is greatly diminished. He recommends receiving the fluid directly into tubes of serum, and placing them immediately in the incubator. Also for the purpose of demonstrating the organism by means of coverslip preparations he recommends incubating the fluid itself for twelve to fourteen hours before rendering a negative report.

V. Lingelsheim's work has great value, in that he demonstrated an agglutinating property in the blood of victims of the disease, developing from the first to the fourteenth day, toward suspensions of either the living or dead organism. Of 420 examinations 146 reacted in dilutions of 1–10.

Westenhoeffer [17] autopsied thirty cases with a view to ascertaining the avenue of entrance of the organism. This he decided to be primarily an infection of the pharyngeal tonsil with extension backward via the lymph channels to the pia surrounding the pituitary body, thence to the general meninges. The lymphatic constitution he considered an important, if not *the* essential, predisposing factor, both in children and adults. He regarded it as strictly an inhalation disease. His suggestion that the meningococcus, as well as other organisms, play but a secondary rôle, analogous to the streptococcus throats in scarlet fever, met with considerable opposition, and, as it was based largely upon the bacterial findings of v. Lingelsheim, does not seem justified by the mass of evidence which is daily increasing, that the meningococcus is the chief, if not the sole, etiological factor in the disease.

In this country two valuable papers have been recently published. Robinson [20] reports the results of bacteriological study of 15 cases in the Pennsylvania Hospital, in all but one of which the meningococcus was recovered from the spinal fluid, and from autopsy in 6 of them. In 2 cases it was isolated from the circulating blood, and in another, from the heart's blood at autopsy. It was also isolated from the pus of a purulent conjunctivitis complicating one of the cases.

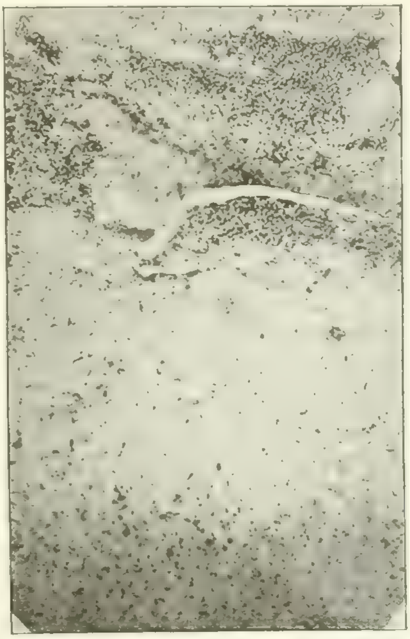

Fig. 3. Histological section of cortex and pia in Case 5, showing purulent infiltration of pia, edema and infiltration of superficial layer of cortex, x 80. The upper portion shows pia infiltrated with polynuclear leucocytes; the middle portion, the edematous cortex; the lower portion, the cortex less affected.

Elser [21] examined spinal fluid from 130 cases occurring in New York and Hudson St. hospitals. The diplococcus of Weichselbaum was found in coverslip preparations or cultures in 109 cases. In 16, no organisms were found. In 5, the diplococcus intracellularis was isolated at autopsy. Mixed infection with pneumococcus was found in two cases. He made blood cultures in 41 cases, with positive result in 10. Cultures from nose or nose and throat were made in 22 cases, with positive result in 6 cases. The diplococcus intracellularis was cultivated from the brain in 14 cases; nose and lungs in 1 case; middle ear in 1 case; pericardium in 1 of 5 cases showing acute purulent pericarditis; from the spleen in 1 case. This author also noted an apparent relation between status lymphaticus and predisposition to the disease. In six fulminant cases under twenty-five years of age, the characteristic persistent thymus and hyperplasia of lymphoid structures were present.

To return to the results obtained in the series of cases forming the basis of this paper, it is seen that of 12 cases, in which both coverslips and cultures demonstrated an organism, 10 were the diplococcus of Weichselbaum, and 2 that of Fraenkel. Both of the latter cases occurred in the midst of the epidemic, and were characteristic in every way. The two most characteristic petechial rashes occurred in cases 5 and 7, both adults, the former a meningococcus, the latter a pneumococcus case. Obviously, the relationship of this organism to the disease requires explanation. Schottmüller [18] regards it as the more common cause of sporadic meningitis. These cases cannot be justly considered apart from the epidemic, however. There can be but two possible explanations. Either the pneumococcus was the etiological factor, in these cases, or it was associated with the meningococcus, the latter being so few as to escape detection.

Diagnosis. — The cases here presented illustrate several varieties in the clinical course which the disease may take. Of the *fulminating type*, terminating fatally within twenty-four hours, there were three cases, within thirty-six hours one case. Of the *chronic* type there were 2 cases, each remaining in the hospital between eleven and twelve weeks. The rest of the cases may be included under the *ordinary type*, and of these, two ran a febrile course for ten days, and recovered (one to die three months later), four died on the third day, one on the fourth, fifth, and sixth days respectively, one on the tenth, and two on the eleventh day of the disease.

Age.— In this small series, there was remarkable diversity in the age of the victims. Six were in the first decade of life, three being in infancy; seven in the second decade; three were in the third decade; one in the sixth and one in the eighth respectively. In larger epidemics, the disease prevails more especially among children of the age to play out of doors, in youth and young adult life. Westenhoeffer (*op. cit.*) regards it as essentially a children's disease. From published cases, however, it can be said with practical truthfulness that no age is exempt.

Physical condition. — In but two of our series was there evidence of antecedent ill health. The others were all seemingly in robust health immediately prior to developing the disease. So far no clinical evidence of predisposition is acknowledged.*

Onset.,— The onset of this disease is almost invariably very sudden and intense. A short prodromal period probably occurs in a large proportion of the cases, but the patient is rarely able to give a lucid account of his experience. In three cases of the series, headache, malaise and, in one, gastro-intestinal unrest preceded the attack, by two days in the first two instances, and four days in the third.

Course and termination. — Its course may be short and stormy, terminating fatally in a few hours or a few days. It may be sharp and severe for a few days, suddenly clear up, and the patient recover completely, or recover with serious impairment of some important organ or function. It may run many weeks with ultimate recovery or death from progressive emaciation and exhaustion. The patient may apparently recover, then die weeks later from a recrudescence of the disease.

Being, therefore, a disease of many phases, its symptomatology is exceedingly complicated. An acute infectious disease, its manifestations are largely determined by the extent and severity of the local pathological process, and its symptoms may be classified accordingly. Thus the initial symptoms of headache, nausea and vomiting; chills, fever and tachycardia, restlessness and delirium are the expression of a high degree of toxemia. These quickly merge into a combination of toxic and irritative phenomena. The photophobia and cutaneous hyperesthesia; the occipital, cervical and dorsal pain and tenderness; the convulsions, cries, neuralgic pains and vasomotor disturbances; the altered reflexes, strabismus, nystagmus, muscular spasms and even paralyses, hallucinations and delusions denote the participation of the nerve roots or centers in the inflammatory process.

Superimposed upon any or all of these may be symptoms to which increased intracranial pressure bears a causative relation. Such are slow pulse and respiration, expulsive vomiting, coma and paralysis.

Further evidence of the infectious nature of the disease, which is readily determined clinically, is found in the hyperleucocytosis, which is almost invariably present. In seven of the cases here recorded, the average number of leucocytes per cubic millimeter was 23,900. The lowest count was 12,400, and the highest, 35,000. The remainder were in the neighborhood of 20,000. In 124 counts made upon his cases in Bellevue, Draper (*op. cit.*) found all but six to be above 10,000, all but 29 to be above 15,000, all but 54 to be above 20,000. Ninety-six were between 10,000 and 35,000, and eight were above 45,000. Leucocytosis is one of the earliest manifestations. The counts, which are taken from the Worcester cases, were all done upon the first or second day after admission, except in one case, in which the average for the first twenty-five days (20,600) is taken.

The occurrence of the bacteria in the circulating blood has no diagnostic interest with our present means of isolating them. Two prominent symptoms, which have long been attributed to their presence in the blood stream, namely, herpes labialis and ecchymoses, may be in theory equally explainable as manifestations of the toxemia, or as trophic disturbances due to central lesions of certain neurons.

(*To be continued.*)

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* Perhaps the evidence will soon be found in persistent lymphoid structures, and no one having the opportunity should fail to note this point in observing his cases. The condition existed in two of our autopsied cases but that the naso-pharyngeal adenoid structure was the atrium of infection was not demonstrable.

THE ROUTINE TREATMENT OF SYPHILIS WITH INTRAMUSCULAR INJECTIONS OF MURCURY SALICYLATE.

BY W. H. PALMER, M.D.,
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The use of hypodermic injections of mercurials as a routine procedure in the treatment of syphilis found few advocates in this country until several years after the Brazilian physician, Silva Aranjo, added mercury salicylate to the armamentarium of syphilologists. In 1888 Aranjo reported his experience with this insoluble mercurial, and shortly afterward Neuman, Szadek, Neisser, Eich, Jadassohn and others on the Continent began to employ the drug. Its introduction into this country was gradual, Bernhardt, Drake and Heidingsfeld being among the first to proclaim its advantages over calomel, the yellow oxide and other insoluble salts of mercury which it has since largely supplanted. Indeed, Gottheil recently stated that he believed the salicylate to be now employed by nine-tenths of those using injections.

Mercury salicylate is a white powder containing approximately 50% of mercury. As it is insoluble in water, it is best administered in suspension, liquid albolene or some similar oily substance being used as a vehicle. It is claimed that the salt is stable and does not deteriorate with age, and a recent inquiry made of several chemists affirms this statement. I have met with one specimen, however, which had stood on the shelves of a drug house for several months and which failed to produce symptoms of mercurialism when injected in 3-gr. doses.

The advantages of the salicylate over the other mercurial salts used for injection. — Given either by injection or by mouth, there is an absence of the gastric irritation, diarrhea, colic and other objectionable symptoms produced by the other insoluble compounds at our disposal. Rarely does the salicylate produce gastro-intestinal symptoms, and then, owing to its slow conversion into a soluble salt, absorption is delayed to such an extent that eliminative measures can be instituted which will keep apace with absorption.

The most important advantage that it obtains over the other insoluble mercurials is that it very rarely produces abscesses. I, personally, have given over eight hundred injections without having seen an abscess. Men who have had a much larger experience with the salicylate report a similar uniform absence of abscess formation. The painful nodosities that sometimes develop at the site of the injection are of trivial import and disappear within a few days without treatment.

Its slow conversion into a soluble compound and its subsequent absorption allow the injection of a considerable quantity of the drug at one time, thus necessitating but one visit a week to the physician.

The bichloride injections are no more efficacious and are very painful. It is necessary to administer the bichloride at more frequent intervals than is the case with the salicylate. Moreover, the bichloride produces abscesses, and this the salicylate does not do.

Calomel and the yellow oxide are the only formidable competitors that the salicylate has had to contend with, save the bichloride, among the mercurials used for injection, and they both have the disadvantage of producing a severe local reaction after their injection.

The advantages of this method over other modes of treatment. — The patient is entirely under the control of the physician. He has no tablet or pill to take after each meal, and, consequently, does not forget to take several doses of his medicine during the week. He is also relieved of the embarrassment attendant upon taking his medicine in the presence of other people.

It affords a means of administering a mercurial which is cleanly and far more accurate and scientific than the dirty inunction method. It has been maintained that the injection of the salicylate of mercury into the gluteal muscles is not a scientific and accurate way of giving mercury. J. W. White, in discussing a paper read by Wolff at the Philadelphia County Medical Society, in 1893, said, in speaking of the injection of insoluble compounds of mercury: "Anything more unscientific, as regards precision of dose, than to throw under the skin an emulsion of metallic mercury in lanolin or a quantity of calomel or yellow oxide and allow it to remain there, subject to the vicissitudes of different degrees of inflammatory action attended with different degrees of absorption, would be hard to imagine." I know of no better argument against the hypodermic injection of insoluble mercurial compounds, and this same line of reasoning has been used against the intramuscular injections of the salicylate. Theoretically, it sounds plausible, but practically we have proof that the salicylate is absorbed with sufficient rapidity and accuracy to make it fully as valuable as any soluble preparation of mercury at our command. If, for two or three injections, a patient is given a fraction of a grain above the amount of the drug known to hold his disease in check, signs of mercurialism will appear. Similarly, if injections are given every five or six days, instead of the customary seven, the same symptoms will occur. This practical proof ought to be sufficient to overrule the above partly theoretical objection.

The injections are not painful, and patients take to them very kindly. The writer has met with only two instances where the patient found the treatment distasteful, and one of these was a case of cerebral syphilis attended by such pronounced depression that he would cry for hours without seeming provocation, and would object to the ordinary methods of testing cutaneous sensibility, claiming that the pain was unbearable.

In the tertiary lesions affecting the central nervous system, and which are still amenable to treatment, this preparation gives better results than any other form of mercury, soluble or insoluble. Bernhardt has rightly emphasized this point. The other methods of treatment are so rarely used as a routine procedure that they need not be discussed.

The disadvantages of the salicylate. — It is only fair to state that in rare instances untoward results have followed the employment of this method, *e. g.*, immediately following the injection, a train of alarming symptoms has been described, which is supposed to be due to a pulmonary embolism produced by the introduction of the suspension fluid into the circulatory system. This accident is so uncommon that men who have given thousands of injections have never witnessed its occurrence, and, indeed, if Lesser's precaution of ascertaining if the needle has entered a vein is carried out as a routine precautionary measure, this accident should, theoretically, never occur. Some twenty to thirty seconds after the injection the patient experiences a dry cough accompanied by a feeling of tightness in the chest, faintness, nausea and air hunger. The cough usually persists for several days, during which time the sputum may be blood-tinged. Fatalities have been reported.

The occasional development of a painful nodosity at the site of the injection causes pain and slight lameness for a few days. Massage and the application of hot cloths will generally cause the rapid disappearance of the indurated mass.

The idea of a surgical procedure being performed will sometimes cause a neurasthenic or hysterical patient to faint. Syncope is especially apt to occur at the time of the initial injection, and this accident may be largely avoided by not allowing the patient to witness the insertion of the needle.

An untoward result, so unusual that only one case has been recorded in the literature, is the occurrence of a tertiary lesion at the place where an injection has been given at some previous time. Kalisch met with a gumma which occurred at the point where an injection had been given five years previously. The gumma was incised and microscopical examination showed a minute amount of unabsorbed mercury which had probably acted as a local irritant, and in this way had determined the development of a gummatous lesion in this situation.

The changes produced in the tissues at the site of the injection. — Pezzoli has reported the findings of a microscopical examination in the case of a man who was killed by a stab wound while receiving treatment. He had received nine injections, — five in the left and four in the right buttock, the last injection having been given sixteen days before death. Liquid paraffin had been used for the suspension fluid. The muscle tissue contained numerous cavities of round or oval shape, filled with the suspension fluid and a small quantity of the unabsorbed salicylate, and were surrounded by giant cells and round-cell infiltration. In addition to these changes waxy degeneration of the muscle cells and hyperplasia of the fat cells were present. Absorption of the mercury had occurred through the lymph vessels. Owing to the great number of muscle cells in the gluteal muscles, the changes enumerated above did not affect the function of the muscles.

The injection site. — There are only two situations available for the injection. The gluteal region is invariably selected on account of the great mass of muscular tissue in that locality. Rarely is it necessary to make use of the interscapular region, and then only for one or two injections. In selecting the point for injection, it is essential to remember three things: (1) The fibrous character of the tissue in the region of the great trochanter; (2) the course of the nerves and vessels; and (3) the most prominent portion of the available muscular mass. This is to be found about half way between the intergluteal fold and a line running parallel to it and dividing the buttock into halves. The division of each buttock into six or more injection sites, as advocated by Peterson, is entirely unnecessary, and it is sufficient to administer the injection on alternate sides, dividing each buttock into not more than three injection sites and then proceeding through the knowledge gained by palpation of the relaxed gluteal tissues rather than according to any fixed plan of gluteal topographical division. If a nodosity develops, it may be necessary to give two consecutive injections on the same side.

The suspension fluid. — Many vehicles have been used and among the most noteworthy are liquid albolene, liquid paraffin, benzoinal and liquid vaseline; watery menstrua are of too low specific gravity to afford a good suspension fluid. Both glycerine and mucilage of gum arabic have been added to water in order to increase sufficiently its density. Schadeck advocates the following prescription: ℞. hydrargyri salicylici 0.2; mucilaginis gummi arabici 0.3; aquæ destillatæ 60.0. Lezius uses liquid paraffin, while Lang recommends a combination of lanolin and liquid paraffin. After having used all of the various suspension liquids above enumerated I have returned to the use of liquid albolene, having found it less irritating and less frequently followed by painful nodosities than the other menstrua advocated by various authorities. The drug is usually suspended in the suspension fluid in the proportion of one part of the salicylate to ten parts by weight, of the fluid used. The salicylate is also administered as a soluble salt and its solution is brought about by several methods. The German therapeutist Hager, recommends the cold saturated solution of mercury salicylate-sodium chloride. A detailed method for its preparation is to be found in his "*Handbuch der Pharmaceutischen Praxis*," 1902, vol. ii, p. 64. This soluble combination is not to be recommended in preference to the usual suspension of the insoluble salt, owing to the small quantity of mercury salicylate that it contains.

Is it necessary to sterilize the suspension before its use? — It is the custom of most men using the salicylate, to sterilize the suspended drug at a variable time preceding its injection. Sterilization, however, is not absolutely necessary, and abscesses do not develop when the suspension is freshly prepared and injected immediately without previous sterilization. Dr. F. C. Edgerton used the unsterilized suspension for a year in the large genito-urinary clinic of the Cornell University Medical School, without seeing an abscess develop, but the painful nodosities were of much more frequent occurrence than when it had been previously sterilized. My experience has been similar to his. Therefore, while sterilization is not absolutely imperative, the local reaction following the injection is more severe if it is not carried out. Sterilization is best accomplished by placing the suspension fluid in sterile bottles which are then boiled for one hour, as advocated by Gottheil. If the suspended salicylate is stored in small ½ or 1 oz. bottles, resterilization is seldom necessary.

The syringe and needle and their care. — Almost any form of hypodermic syringe having a glass barrel may be used, but for cases requiring the injection of small amounts of the mercurial a specially constructed syringe having a finer graduation than the ordinary hypodermic syringe is to be preferred, owing to the greater accuracy of dose required. The oily suspension of the salicylate does not injure the metal of the nickel-plated hypodermic syringes and a syringe of this kind may be used, providing its interior is free from water.

The "all-glass" syringe with an asbestos packing is in more general use for this work than any other syringe. It has the advantage of being readily sterilized by boiling. The threads for needle attachment are so large, however, that leakage is apt to occur unless the needle is very carefully connected, and this is rather difficult following Lesser's precaution, after the needle has been inserted into the buttock.

The needle should be about 1¼ to 1½ inches long and of 21 gauge size. Larger needles, even a 19 gauge, cause pain when introduced into the tissues and a needle of smaller caliber will not readily carry the injection fluid. The needle can be sterilized by boiling, by passing it through a flame or by immersing it in some of the alcohol and ether used to sterilize the injection site, while the patient and syringe are being prepared. Boiling of the needle necessarily shortens its life through oxidation within the lumen. Flaming, unless very carefully done, will injure the nickel plating and make the point of the needle so rough that it is soon unfit for use. The method of dropping the needle into alcohol and ether is efficient and does not interfere with its life or temper.

The technique of the injection. — The patient is placed face downward upon a suitable table and the site for injection is selected. It is the custom of most men using this method, to give the injection with the patient standing. The horizontal position is to be preferred as the gluteal muscles are more relaxed in this position and, accordingly, offer less resistance to the ingress of the needle. Also, the patient is in the best position in case syncope should occur. The portion of the buttock selected is thoroughly rubbed with a mixture of equal parts of alcohol and ether and the piece of gauze used for this purpose is left in place while the physician thoroughly shakes the bottle containing the injection fluid in order to make the suspension as complete as possible. Somewhat more than the amount to be injected is drawn into the syringe and the needle is then attached. The syringe is inverted and any air bubbles are expelled together with sufficient suspension fluid to make the amount in the syringe the exact quantity desired for administration. The gauze wipe is then removed and the needle is plunged quickly into the gluteal muscles for 1 to 1½ inches, depending upon the musculature of the individual. This is a most important step for it must be done with great rapidity in order that the patient shall not feel the entrance of the needle and, if the needle be inserted with sufficient celerity, it is absolutely unnecessary to use a local anesthetic of any sort. The syringe is now quickly detached from the needle and Lesser's precaution of watching the suspension-filled lumen to ascertain if the needle has entered a vein, is carried out for fifteen to thirty seconds. If blood wells up into the lumen of the needle, reinsertion is necessary; if not, the syringe and the needle are connected and the suspended salicylate is slowly injected into the tissues, whereupon the needle is removed and the place injected is massaged for a full fifteen minutes. Again the technique here advocated varies from that usually employed and it is quite necessary that this prolonged massage be thoroughly carried out if we do not wish an occasional painful nodosity to develop. The sealing of the point where the needle punctured the skin is a matter of refinement in technique rather than necessity, for the needle was covered with injection fluid at the time of its entrance into the tissues and a few drops of the suspension fluid were forced upward alongside the needle when the piston of the syringe was depressed and thus the needle-tract was thoroughly disinfected and will remain so until the external opening is closed.

Dosage. — The primary injection should consist of ½ gr. of the salicylate or 5 minims of the 1 to 10 suspension. This first injection is generally followed in two days by a second injection of ¾ gr. Four days is then allowed to elapse if there is no great necessity for rapid mercurialization, before the third injection of 1¼ gr. is administered. In order to treat syphilis properly the patient must be kept on an amount of mercury a fraction of a grain less than the quantity known to produce symptoms of mercurialism and it is always better to produce a slight gingivitis or other symptom of mercurialism and in this way find out how much mercury is necessary to keep the patient under control, instead of giving smaller doses without the knowledge of the patient's tolerance. In more than 75% of syphilitics 1¼ gr. every seven days will suffice to keep the patient under control; but occasionally 1¾ and 2 gr. doses are found necessary. I have met with one case where it was necessary to give 2¼ gr. every six days for several weeks in order to keep the symptoms under control.

Duration of treatment. — As to the length of time over which the treatment should extend, it is customary in this country to give a course of the injections for two years and then, after a rest of a few months, reinstitute treatment for six months or a year. Recently certain French syphilographers have maintained that syphilis is insufficiently treated and that there is a relation between the insufficient treatment and the so-called parasyphilitic affections, — general paralysis of the insane and tabes dorsalis. The apparent dependency of these parasyphilitic disorders upon syphilis as a determining etiological factor, has led the veteran Fournier to recommend a course of treatment which is based upon the fact that the parasyphilitic lesions very seldom develop before the sixth year of the disease and most frequently appear during the ninth and tenth years following the initial lesion. This method of treatment Fournier has termed, "*Méthode des cures mercurielles à termes tardifs.*" In brief, it consists of a thorough mercurial treatment covering the first two years of the disease. At the end of this time treatment is discontinued and if no symptoms appear, the patient is allowed what Byrom Bramwell has aptly called "a period of therapeutic repose" for two years, during which time no mercury is administered: then during the fifth year the patient receives a course of mercury lasting one year. The patient is again allowed to go without mercury until the latter part of the seventh or the beginning of the eighth year at which time the final course of mercury is administered. This method is yet in its infancy; Fournier has claimed nothing for it; he has merely offered it as a suggestion. From a pathological point of view it seems very plausible, and in spite of the disheartening attempts to prevent the occurrence of these diseases by the usual treatment covering three years or less, it is deserving of a thorough trial before being condemned simply because the less prolonged treatment has been so frequently ineffectual in preventing these diseases.

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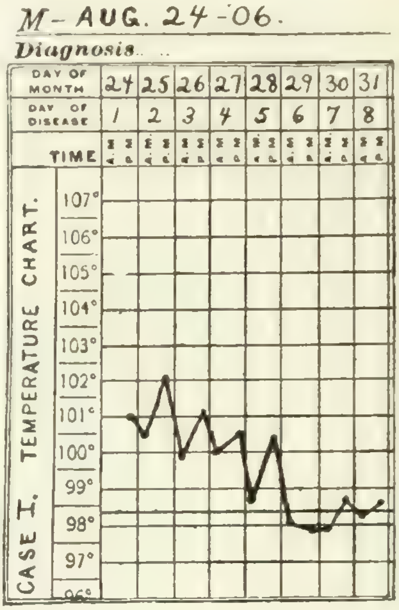
EXTERNAL EYE INFLAMMATIONS OF DOUBTFUL ORIGIN.

BY H. GLOVER LANGWORTHY, M.D., DUBUQUE, IOWA.

Case I. *Bilateral Orbital Cellulitis and Exophthalmus of Obscure Origin, Simulating Cavernous Sinus Thrombosis and Double Frontal Involvement; Infecting Organism, probably Pneumococcus.*

On Aug. 24, 1906, there was admitted to the Massachusetts Charitable Eye and Ear Infirmary on the aural service of Dr. Edward M. Plummer, a young man, twenty-three years of age. Occupation, drug clerk. Family history not obtained.

Past history. — Has had the usual "children's diseases." Said to have had "blood poisoning" of right forearm when twelve years old from an abrasion of the index finger.



Present illness. — Two and one half days before coming under observation noticed a slight swelling to the outer edge of both orbital margins. The following day the eyes shared in the extension, becoming reddened and painful. There was some discharge. He was able to work during the day although suffering from increasing lachrymation, blurring of vision, pain and headache. The subcutaneous tissues below both eyes became puffy and reddened. Towards night the men at the store remarked that his lids were swollen and "eyes stuck out." General condition seemed fairly good in spite of the virulence of the local infection. He was ignorant as to the cause of the trouble, had been handling drugs and also used a towel common to all.

On Aug. 23, the case was first seen by Dr. H. C. Parker and referred to the House. There seemed a reasonable doubt as to whether the condition was a beginning thrombosis of the cavernous sinuses or the result of disease in the accessory nasal sinuses. There was an appreciable exophthalmus of both eyes, chemosis of the lids, and fever. No vomiting, chills or dizziness.

Physical examination. — Well developed and nourished. Moderate prostration. Chemosis of lids of both eyes and exophthalmus. Great ocular injection, conjunctivæ swollen to the extent as to overlap the cornea in places. Cornea clear. Pupil dilated from atropine. Iris, good color. There is a stringy mucofibrinous discharge from both eyes. Fundi negative. Vision: right eye 20-70, left eye 20-50. Diminution in sight due principally to the discharge adhering to the surface of the cornea. The skin immediately below both eyes is puffy and reddened but no line of demarcation. No apparent external connection between the inflammation of each orbit, the skin over the nose being normal. No tenderness over either frontal sinus. White count, 12,000. Temperature 101° F., pulse 100, and respirations 28. Nose, throat, lungs, abdomen and ears negative. Smear showed the xerosis bacillus, a nonpathogenic organism in the eye. Cultures were taken of the discharge. In spite of the local condition the patient's mind was clear and he could walk easily and naturally about the ward. The chief complaint was one of local discomfort. The appearance of the middle third of the face was that of disfigurement from an exceedingly acute infection of unknown origin. The treatment of eye cleanliness and frequent ice compresses was carried out by Dr. D. W. Drury, the Aural House Surgeon.

Aug. 25. The diagnosis is still uncertain. Developing erysipelas, thrombosis of the cavernous sinuses and acute involvement of both frontals have each in turn been considered. Poisoning from bites or drugs was discarded. There is slight bilateral exophthalmus, edema of the lids and great injection and swelling of the conjunctivæ. Temperature, 102° F., pulse, 115. Very little prostration. The x-ray plates taken yesterday show no involvement of frontal, ethmoids or antrum, on either side. There seemed no reason to suspect a caries of the body of the sphenoid. Cultures showed chiefly the pneumococcus.

Aug. 26. Exophthalmus has disappeared. Slight prostration. Mind clear.

Aug. 28. Edema of the lids, swelling and injection of ocular conjunctiva almost gone. Temperature normal. Fundi negative. Vision with glass normal.

Aug. 31. Eyes white and quiet and apparently normal. Discharged well.

If we accept as the characteristic feature of phlegmonous inflammation a relatively slight alteration of the surface with diffuse swelling and hardness of the deeper tissues, and the temperature chart of a purulent fever with slight remissions, this case must fall under such a nomenclature. These conditions sometimes subside without operative interference. The clinical picture may vary with the location.

The mischief started undoubtedly as a conjunctivitis of pneumococcus origin with a stringy mucous discharge. Temporarily neglected, it soon proved to be exceedingly troublesome. We are told that one of the first features which Sternberg himself noticed was the great variation in the virulence of this organism. Subcutaneous inoculations with cultures of the pneumococcus will cause usually only a local reaction, while injections into the peritoneal cavity of a rabbit will produce a rapidly fatal septicemia.

Once started the infection followed lines of perhaps low resistance in this particular case and quickly involved the cellulo-fatty tissue of the orbits. Of course, the infection may have been a mixed one, associated with either the streptococcus or some of the intermediate bacteria. There was no history of trauma.

Beginning facial erysipelas seemed to me at first the most plausible explanation, but the subsequent course of disease showed that I was wrong.

Acute poisoning would hardly have given exophthalmus.

With an infectious process in a region anatomically drained by the cavernous sinuses one is naturally on the lookout for such a catastrophe. The condition is, however, always associated with the most severe cerebral symptoms, and by the time both eyes are affected the patient is moribund. Death is also the invariable accompaniment of cavernous sinus thrombosis.[1]

As orbital inflammation may be the result of empyema of the frontal, ethmoids or antrum, without demonstrable intranasal signs the x-ray was invaluable in settling that important question.

Exophthalmus coming on a week or two after initial attacks of influenza with and without pneumonic lesions, have been reported, but they do not seem applicable here. A most careful examination for sphenoidal disease was negative.

I am aware that the theories offered in this paper as to the causative factors of the local trouble are a presentation of doubts. One would suppose that Tenon's capsule should offer an effectual barrier towards infection anteriorly. It is easy to say that the condition must have started intranasally but such was not the fact.

Cases of bilateral orbital phlegmon are rare.

Case II. *Acute Bilateral Edema of the Eyelids of Unknown Etiology; Question of Angio-Neurotic Edema or Double Frontal Sinusitis.*

On Oct. 18, 1905, a young man, eighteen years of age, was admitted to the Infirmary on the aural service of Dr. E. M. Plummer. Birthplace, Sweden. Understood and spoke English imperfectly.

The following history was secured: No previous eye trouble. Six days before coming to the hospital noticed that the lids of the right eye were badly swollen and painful. This morning the left eyelids also became involved. Much local discomfort. Thought he might have been bitten by mosquitoes. Said to have had a discharge from the left nostril.

Physical examination. — Marked redness and swelling of the lids of both eyes. No definite point of infection through the skin could be found, even with the aid of a hand lens. Chemosis occupied chiefly the outer two-thirds of the lids. Cornea clear. No ocular injection. No tenderness over either frontal sinus. Right nostril, mucous membranes not reddened. Slight hypersecretion, no pus. Turbinates not especially congested. Deviation of septum to right. Left nostril, nothing abnormal found. X-ray taken of accessory nasal sinuses.

This evening there is a small inflammatory swelling on the back of the right hand almost identical to that of the lids. The appearance of a third area of redness and edema on a distant portion of the body was most helpful as indicating the unlikelihood of any trouble in the frontal sinuses.

Oct. 20. Swelling of the lids of both eyes has almost subsided. Redness and edema of still another circumscribed area nearly encircling the right forearm has appeared. No temperature. Local itching and discomfort. X-ray showed no trouble in the sinuses as was expected.

Oct. 24. No swelling or redness about the eyes, right hand or forearm. Discharged well.

The etiology of the local disturbance was obscure. The case seemed to tally best under that type of trophoneurosis known as angioneurotic edema. It was an affection of local edematous swellings, more or less limited in extent and of transient duration. The edema appeared suddenly. There was no temperature or gastro-intestinal colic. No family history of a like trouble could be obtained.

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[1] In a paper on a "Proposed Operative Measure for Thrombosis of the Cavernous Sinus" (The Laryngoscope, July, 1906), an endeavor was made to show that the cavernous sinus could be drained by removing the inner wall of the orbit and anterior and lateral wall of one sphenoidal cavity. Attempts at draining the sinus by following a Gasserian ganglion resection route have twice been given a trial by Hartley and Knapp, Arch. of Ophthalmology, 1900, and Dwight and Germain, Boston Medical and Surgical Journal, May, 1902.

Snell [2] reports a case of acute edema of the eyelids of both eyes in a pork butcher coming on a few hours after dressing a pig which contained a large number of intestinal worms. The swelling rapidly subsided and was well in a few days. There was no exophthalmus or ocular injection.

There would seem to be an affinity between the one presented by Snell and Case II, inasmuch as they might both have been caused by the action of unknown toxic agents.

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Clinical Department.

RUPTURE OF THE MALE URINARY BLADDER.*

BY BENJAMIN BRABSON CATES, M.D., KNOXVILLE, TENN.

In *Annals of Surgery* for December, 1905, appears a well-written and interesting article by Dr. Horwitz, of Philadelphia, on "Rupture of the Male Urinary Bladder." He gives an exhaustive dissertation on the subdivisions, pathology, and the mechanism of the different kinds of rupture of this organ, and cites reports of like injury as occurring in the practice of a number of distinguished surgeons. On account of the scarcity of the literature on this subject, there being an average of four cases annually reported to the literature, he admits no well regulated line of treatment in "Rupture of the Male Urinary Bladder" is as yet laid down to the medical profession. Therefore, on account of the relative scarcity of rupture of the male urinary bladder, it appeared to me that each accident of this kind that comes under the notice of surgeons should receive due consideration at the hands of the profession, together with any complications that may appear, and the treatment thereof, so that the data thus collected may enable those who practise surgery to formulate a plan of action to meet the exigencies of each case of injury of the male urinary bladder.

For this reason I wish to make report of a case of rupture of the male urinary bladder that came under my observation. I shall deal only with the extra-peritoneal variety.

On June 30, 1905, I was called to Cambell's Station in consultation with Drs. J. A. Mourfield and R. M. Tillery to see Charles Boring, a lad of fourteen years, who presented the following history:

On the morning of the accident, which was June 28, 1905, he left home on horseback about 8 A.M., to go to the village, some three miles away, to attend to some business. Thinking to shorten his trip, he took an unfrequented path through the woods. Some three or four hours after he had left home his family saw him returning, leading his horse, and acting in a dazed sort of way. He could give no account of himself, except after starting from home he left the main road and took through the woods. His family became alarmed at his condition, and sent for Dr. Tillery. When Dr. Tillery arrived, he found the lad talking queerly, and still dazed. An examination failed to reveal any external visible signs of an injury; however, the lad did pass voluntarily a small quantity of bloody urine. He did not suffer much pain, had no increased temperature, and had a good pulse. On the second day Dr. Tillery saw him again, and with the catheter secured a small quantity of bloody urine. The catheter kept choking up with blood clots, hence the small quantity of urine. In the meantime, the lad's belly began swelling, and he showed signs of systemic infection-fever and a rapid pulse. Dr. Tillery diagnosed a rupture of the bladder, which was concurred in by Dr. Mourfield, who had been called in consultation, and they advised an operation.

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[2] Acute Edema of the Eyelids, Snell, S.: Am. Jour. of Ophth., June, 1906..

* Read before the Knox County, Tenn., Medical Society Sept. 27, 1906.

I saw the lad on the afternoon of the third day after the injury. He had great distention of the abdomen in the middle line, considerable distress in breathing, and systemic infection; his temperature was not very high; his pulse was rapid and thready. I agreed with the attending physicians as to the advisability of an operation. This was readily accepted by the patient and his family.

Assisted by Drs. Mourfield and Tillery, I opened the abdomen by a four-inch incision into the cavum Retzii, and evacuated a large quantity of bloody urine. There was a small laceration in the front wall of the bladder above its neck. Through the incision in the belly and this rent in the bladder, I introduced a soft rubber catheter for drainage. I also took three or four silkworm gut sutures in the upper angle of the incision in the belly, and applied copious antiseptic dressings.

The lad rallied from the operation in a fairly good condition only. On the second day after the operation, I again saw the patient. In the meantime mephitic necrosis had developed in that part of the wound where the stitches had been placed. The stitches were removed, and a hot, moist antiseptic dressing kept applied.

The lad improved slowly, and in the course of a couple of weeks began passing some urine per viam naturalem. The rubber drain was kept in position until the patient had complete control of his bladder, when it was removed. However, some urine passed into the opening until the opening had completely healed. The hot, moist antiseptic dressings were kept up until the slough was cast off, and the wound became covered with healthy granulations. The wound granulated up and was closed in the course of two or three months. In due course the lad finally recovered entirely, and to-day is as active and healthy as any boy of his age.

Remarks. — I suppose the mechanism of the laceration will never be known. My idea was one of two ways. The horse either fell with the lad, and in doing so may have stepped or rolled on him in regaining his equilibrium. This is hardly likely, because there were no signs of violence on the lad's body. What, to my mind is more likely, is the boy had a distended bladder, and was thrown from the horse, the hydrostatic pressure bursting the bladder at its weakest point, though Horwitz, quoting Cabot, claims rupture of an empty bladder may follow great force applied to the hypogastrium.

In the future, it seems to me the part of wisdom in like cases, when there has been considerable distention impeding the plasma circulation and reducing the vitality of a part below par, not to introduce stitches, but to use drainage and allow the parts to heal by granulation. Because, when stitches are introduced into tissue of a low vitality, saturated with urine, infection more readily takes place. Again, when the stitches are tied, complete stasis takes place in the capillaries. The tissues thus deprived of their blood supply fall an easy prey to the action of the microbes and their ptomaines, as a result of which necrosis takes place. Again, I am persuaded from the lesson learned in this case, in the future to recommend abdominal section following any injury in the hypogastrium in case the catheterization reveals bloody urine, and after a reasonable time, say two or three hours, the patient is unable to void his urine. Should symptoms of collapse attend injury in the hypogastrium in connection with bloody urine, should recommend immediate operation.

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Medical Progress.

RECENT PROGRESS IN SURGERY.

BY HERBERT L. BURRELL, M.D.,
AND
H. W. CUSHING, M.D., BOSTON.

TWENTY-TWO FATALITIES WHICH HAVE OCCURRED UNDER ETHYL CHLORIDE.

Thomas D. Luke [1] collected a series of cases, in some instances giving complete details of fatalities following the administration of ethyl chloride. Many of the cases were bad subjects for an anesthetic. It is noteworthy that out of the 22 fatalities, eight occurred during dental operations. Luke, after a careful analysis and figures, estimates that there is a death-rate of 1 in 8,000, and states that "ethyl chloride is, therefore, a comparatively safe anesthetic agent, certainly much safer than chloroform for short operations." He states that ethyl chloride has been used very frequently for the removal of adenoid growths from the naso-pharynx, and in the Royal Infirmary in Edinburgh it has been administered in upwards of 1,500 occasions without a mishap.

Luke states: "As regards personal experience I have now administered ethyl chloride to all classes of patients on considerably over 2,000 occasions and have been happy in not seeing a single fatality, and indeed nothing worse than two cases of temporary respiratory arrest with considerable cyanosis and very widely dilated pupils. One of these cases was sufficiently alarming and demanded immediate and careful treatment, and such cases, quite apart from actual deaths, make it quite plain that no one should undertake the administration of ethyl chloride at any time unless he is prepared and quite qualified to deal with an anesthetic emergency. The dangerous symptoms come on with a rapidity not exceeded by the onset of troubles in chloroform anesthesia. Ethyl chloride is most essentially not an anesthetic to be administered, as it has been in the past, haphazard, according to the 'instructions for use' provided with a new inhaler by the enterprising instrument maker or druggist. In dental work it is best not to give ethyl chloride alone but either to give it in mixture with nitrous oxide for short cases, in small doses of from 2½ to 4 cc., or in sequence with ether for the longer cases.

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[1] The Lancet, May 5, 1906, p. 1231

"In my opinion the 'boom' in ethyl chloride is well-nigh at an end, but while the publication of such a list of deaths as is recorded above may well discourage the promiscuous and irresponsible use of a highly toxic and very rapidly acting anesthetic, yet one would hope that ethyl chloride will not be unduly discredited or sink into comparative desuetude; it should rather take its proper place as a valuable addition to the anesthetist's armamentarium for properly selected and suitable cases."

ANESTHETICS AND RENAL ACTIVITY.

Thompson in an article on this subject[2] summarizes his findings regarding the effects of prolonged chloroform narcosis as follows:

1. The volume of urine secreted by the kidney is, as a rule, affected during chloroform narcosis in two ways. In the early stages, when the anesthesia is light, the quantity is frequently increased. During full anesthesia the secretion is always diminished, and may be suppressed.

2. The after-effect is invariably a great increase, which in certain periods may reach to four times the normal volume for the same period of time. The maximum outflow occurs about three hours after removal of the anesthetic.

3. The total excretion of nitrogen is, as a rule, greatly reduced, — more so than the quantity of urine. The averages taken from experiments with diminished urine volume show that during the anesthetic period the excretion of nitrogen fell to 18% of the normal, whereas the quantity of urine in the same series fell only to 35% of that amount. In a minority of the experiments with increased urine volume the total nitrogen per period was also increased, but to a much less extent than the volume of urine in the same experiments.

4. The urine secreted during chloroform anesthesia is almost invariably more dilute (contains less nitrogen per cent.) than the normal urine. This holds good even when the volume of urine is diminished; hence it is inferred that chloroform affects not only the blood flow through the glomerulus, but also the secretion of nitrogenous solids into the tubules and the latter even more than the former. The result, therefore, favors the theory of urinary secretion advanced by Bowman.

5. There is a general but not accurate correspondence between urine outflow, kidney volume and blood pressure. The relationship between the first and second is closer than between the first and third. A state of almost complete suppression may co-exist with a comparatively high blood pressure.

6. In prolonged narcosis, with marked diminution of urine volume, there is a considerable exudation into the renal tubes of leucocytes which subsequently escape with the urine. The condition is probably produced by more or less vascular stasis in the glomerular vessels.

7. The excretion of chlorides is much increased doth during and after chloroform narcosis. In the fourth period after removal of the anesthetic the amount may be ten times the normal quantity in the urine of the dog.

8. Albumen appears in a small proportion of experiments after chloroform inhalation.

9. Reducing substances other than glucose are almost invariably increased. The nature of the reducing substances has not been definitely determined.

INVISIBLE SURGERY.

Under this title J. L. A. Aymard[3] has contributed a suggestive paper with a diagram representing a skin incision. The method, he states, is as follows: "My new method of skin division consists of the simple operation of dividing it upon the slant in contradistinction to the present method of dividing the same at right angles to the surface. My idea, though new by design, is by accident of very ancient origin. There are few of us who have not on our person some example, however small, of this cut through the skin upon the slant. Such a cut, if extensive, generally presents a somewhat lumpy appearance due to contraction and very often a smooth mark at the line of junction. It is a skilled application of the principle with scientific correction of the defects which give results entitling such a heading as appears to this article."

The details are given at length. Much attention is given to the form of knife that is used, the direction of the incision, the adjustment of the flaps, rarely by sutures, usually by China silk and collodion, and to carefully graduated pressure.

DISTURBANCES IN GROWTH AFTER BRIEF EXPOSURE TO ROENTGEN RAYS.

Försterling[4] exposed a series of dogs and rabbits at 20 cm. distance in from five to twenty minutes. Control rabbits were exposed for ten to fifteen minutes. It was found that the younger the animal the more constant was the inhibitory action on the growth. Försterling found that a single exposure to the x-ray sometimes had a marked effect, inhibiting the growth of the part exposed.

TREATMENT OF ACUTE INFLAMMATIONS WITH STASIS HYPEREMIA.

E. Lexer[5] has observed the effects of Bier's method of treatment. He considers that in mild, acute infections the treatment may be used. In the severe infections he believes that the treatment is injurious unless free incisions have been made. The deeper the inflammatory lesion the less ample is Bier's treatment. The treatment has its distinct limitations and these are apparently beginning to be defined.

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[2] Brit. Med. Jour., March 17, 1906, p. 608.

[3] The Lancet, May 12, 1906, p. 1314.

[4] Centralbl. f. Chir., May 12, 1906, p. 521, no. 19.

[5] Münch. med. Wochenschr., liii, no. 14.

CASES OF SPONTANEOUS INTRACRANIAL HEMORRHAGE ASSOCIATED WITH TRIGEMINAL NEVI.

Harvey Cushing[6] calls attention to Bärensprung's observation that vascular nevi on the face often occupy the area of the trigeminal nerve. His conclusions are as follows: "Vascular nevi occurring on the face show a tendency to conform in outline with the distribution of one or more of the main trigeminal branches. These cutaneous nevi may be associated with some degree of hypertrophy of the deeper tissues of the face, with an enlargement of the eye, and finally with the presence of a corresponding nevoid condition of the dura mater. This dural nevus may lead to a spontaneous hemorrhage during infancy, with consequences similar to those which follow the subdural hemorrhages occurring during the early months of life from other causes, — epilepsy, spastic hemiplegia or even amentia. Absorption of the clot may lead to cortico-dural adhesions which in favorable cases can be separated with benefit to the epileptiform convulsions, provided measures such as carotid ligation are taken to prevent complications from too great a loss of blood during the operation."

SURGICAL TRAUMATISM AND FACIAL PARALYSIS.

Jacobsohn[7] reports the results of 6 cases of traumatic peripheral facial paralysis, and has quoted 12 cases of Köster, in which paralysis occurred. He considers that Cushing's modification of the Hartley-Krause operation for the removal of the Gasserian ganglion is not followed by paralysis.

ACUTE SEPTIC INFECTION OF THE THROAT AND NECK: LUDWIG'S ANGINA.

Gwilym G. Davis[8] has contributed an excellent article which is historical and exhaustive, on this subject.

The onset of the disease is usually insidious, but frequently cases are fulminating in character. Davis quotes two cases that died in ten hours. He believes that the condition is an infection which is at first a purely local infection "whose extension can be promptly cut short by fearless surgical treatment." The reviewer has had a number of cases of Ludwig's angina, and is of the opinion that it is important that the condition should be recognized early and adequately treated by a free external incision in the median line between the symphysis and the hyoid bone.

Some selected references are given with the article.

OPERATIONS ON THE THYROID GLAND.

Kocher at the German Surgical Congress[9] reported on the third series of 1,000 operations for extirpation of the thyroid gland, the death-rate being 0.1%. Thirty-six of the cases were for malignant disease, 8 for inflammation of the gland, 52 for Graves's disease and the remainder were for ordinary enlargement of the gland.

PRIMARY SARCOMA OF THE OMENTUM.

Farrar Cobb[10] had a case of sarcoma of the omentum which he removed, patient living five weeks after the operation. He was led to look up the literature on the subject, and found that very few cases had been reported.

The symptoms in Cobb's case were increasing intestinal obstruction, intestinal distention, constipation without pain and very little loss of weight. The progress of the disease was rapid.

A study of the reported cases, he states, indicates that the early symptoms are those of gastric and intestinal indigestion, nausea, vomiting, loss of weight and strength, and these symptoms exist for some time before a tumor can be felt. Alternating constipation and diarrhea for several weeks or months has been noted.

The constant diagnostic sign is the presence of a palpable, flat, movable tumor, with or without signs of fluid in the abdominal cavity. An abstract of the cases that were found in the literature on the subject is given, and an excellent bibliography.

FALSE DIVERTICULA OF THE VERMIFORM APPENDIX.

M. G. Seelig[11] obtained an appendix that showed a large, fully-formed diverticulum, and a small diverticulum in the process of formation. Seelig states that there are fifteen or twenty diverticula of the appendix reported in literature and that they usually form at the mesenteric attachment of the organ. He considers that these diverticula are formed by the pressure from within the appendix being sufficient to cause the mucosa to be forced outward. If the appendix has been the site of inflammation which resulted in necrosis and this necrosis has been repaired by connective tissue, this yields and allows a diverticulum to form. Seelig points out that the clinical significance of these diverticula may be important, in that perforation may readily take place. A bibliography is appended.

PRIMARY MALIGNANT DISEASE OF THE VERMIFORM APPENDIX.

Rolleston and Jones[12] have collected 62 supposed cases of primary malignant disease of the vermiform appendix. They have excluded certain cases not confirmed by the microscope and those that may have been primary in the cecum, and reduced the number to 42, 37 of which were carcinoma, 3 endothelioma, and 2 sarcoma. The clinical symptoms presented in four cases were for symptoms referable to the female pelvic viscera. In several cases it was due to a fistulous tract thought to be due to pus or tuberculosis. In the vast majority of cases the symptoms were thought to be due to either acute or chronic appendicitis. The results of immediate and remote operation have been excellent. A complete bibliography is appended.

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[6] Jour. of the Am. Med. Asso., July 21, 1906, p. 178.
[7] Deut. med. Wochenschr., xxxii, no. 29.
[8] Ann. of Surgery, vol. xliv, no. 2, Aug., 1906, p. 175.
[9] The Lancet, May 19, 1906, p. 1423.
[10] Ann. of Surg., vol. xliv, no. 1, July, 1906, p. 16.
[11] *Ibid.*, p. 78.
[12] The Lancet, June 2, 1906, p. 1525.

CANCER OF THE COLON.

Willy Meyer [13] has written an excellent article on this subject, describing the various types of operation that are done for the removal of cancer in this situation. He concludes as follows:

"1. The great importance, as well as the difficulty of early diagnosis and timely operation in carcinoma of the colon, particularly in view of its comparatively favorable prognosis.

"2. The necessity of most careful study and consideration of the often obscure symptoms of this trouble.

"3. The great diagnostic value of (*a*) the so-called 'subjective' as well as 'objective intestinal stiffening' or tetanic recurrent peristalsis of the gut proximal to the seat of the disease. (*b*) The multiple capillary angiomata in combination with the more significant small pigmented warts and spots that are frequently seen to appear in the skin of the abdominal wall. The latter may be accepted as an almost unfailing pathognomonic sign, provided the history and palpation point to colonic disease.

"4. Radical operation, based upon early diagnosis, may well be successfully performed in patients up to sixty years of age and older, provided their general condition is good.

"5. In old and weak patients, timely palliative work by means of a lateral anastomosis will enable us to circumnavigate the establishment of the always objectionable artificial anus, and make unnecessary the seriatim operating, which is unavoidable if the patients reach the surgeon with pronounced tympanites and ileus."

CANCER OF THE RECTUM.

Du Pan [14] reports the cases treated by Kocher between 1873 and 1904, 123 cases. About 41.67% of the patients have had no recurrence. He states that Kocher considers that the central stump should be fixed to the anus without invagination in the peripheral stump. The peritoneum is sutured. Local recurrences occurred in about 40% of the cases, and the recurrences operated upon usually gave good results.

CANCER OF THE SIGMOID AND RECTUM.

C. H. Mayo [15] has operated upon 26 patients during the last five years, of whom 7 died as the result of the operation within the first month; 19 recovered; 2 were not traced, but were well a year after operation, and 10 were operated upon too recently to be reported as permanent results. Over 50% of the cases were alive and well three years after the operation.

His method of procedure is as follows: The patient is placed in the high Trendelenberg position and the abdomen freely opened in the middle line. The upper limits of the growth and its relation to the surrounding tissues noted. The possibility of the removal of all of the obviously infected glands is ascertained, and the liver examined for embolic carcinoma. If the case is a favorable one, the intestines, with the exception of the sigmoid, are carefully packed away with large gauze pads; two clamps are caught across the lower sigmoid on a level with the promontory of the sacrum and the bowel divided between. The mesosigmoid is liberated by lateral incisions and the proximal fragment brought up outside of the abdominal wound. A ligature is thrown around the bowel immediately below the forceps, which are removed as the ligature is drawn tight. A purse-string suture is placed an inch below the end of the stump, which is invaginated in a manner similar to that of the appendix. The ends of the ligature are left long. The threads and stump are carefully cleansed. The distal stump is treated by inversion in a similiar manner, to prevent soiling. Lateral and anterior peritoneal incisions are now made, liberating the rectum from the bladder and prostate in the male and from the uterus in the female. The inferior mesenteric artery, which is the upper continuation of the superior rectal, is caught and tied above and to the left of the promontory of the sacrum at as high a point as can be safely done without interfering with the nutrition of the bowel used in the colostomy. The fat is carefully separated, the entire mass of gland-bearing fascia, with the fat, is wiped perfectly clean to the periosteum. The middle sacral artery is of considerable size in most cases, and should be caught and ligated near its origin from the abdominal aorta between the common iliac vessels. The dissection is continued downward, exposing the internal iliac vessels and the ureters. Most of this can be done by sponging. The middle hemorrhoidal vessels are caught laterally, as they come off with the inferior. The entire area is now packed with hot, moist gauze, and the patient put in the perineal position. In some cases, if the bowel is healthy for a space of four inches above the anus, it is clamped and ligated at this point, and cut above the ligatures, the diseased area being removed. The operator, or preferably a second operator, begins the lower part. A pair of forceps are passed into the blind pocket of bowel from below, the tied end of the bowel is pushed into the open forceps, and they are withdrawn through the anus, inverting the bowel.

"After cleansing, the thread of closure is cut, and the forceps are now passed through the invaginated bowel and anus into the pelvis to grasp the proximal end of the bowel, which is withdrawn, and the two ends united by a circular end-to-end closure outside the anus and allowed to retract. Drainage is secured by a midline incision in front of the coccyx, through which the tube drainage into the pelvis is made. This type of operation (Mansill) we were able to make in four cases. In some colostomies, the lower end of the rectum can be saved by a blind pouch, or temporarily employed for drainage of the pelvis. Should the disease require such extensive removal of the rectum as to destroy the lower rectal wall muscles and nerves, as well as to straighten the sigmoid loop, thereby losing both retention and control, it is preferable to save the sigmoid loop as such and make an abdominal anus. To employ this method, a small gridiron incision is made on the left side, as would be done on the opposite side for appendicitis, and through this opening, using the ends of the threads as a tractor, the proximal stump is pulled out three fourths of an inch beyond the skin surface. Three or four linen sutures are quickly placed, uniting the bowel to the peritoneum on the inner side, and a silkworm-gut suture on the outside closes each angle of the wound, including in its bite the skin, aponeurosis of the external oblique, and the wall of the bowel, holding it securely in position. If this plan is is followed, the operator from below, after inserting the gauze in the rectum to facilitate subsequent dissection, and closing the anus by a circular suture, circumscribes the anal margin with a deep incision, and dissects the perineal portion of the rectum with its muscles and fat free from the prostate and urethra, and from the vagina in women. This extends up to the levator ani muscle, which forms the boundary between the upper and lower dissections. The abdominal operator now passes down the fragment of lower sigmoid and the upper end of the rectum with its fat and glands into the perineal opening, where they are removed by the surgeon working below; or one operator, with changes of gloves, can accomplish the work in both fields. All bleeding-points are caught and ligated. A considerable sized gauze drain is passed from above downward, leaving its upper end just exposed on a level with the peritoneum, which is drawn together to cover as much as possible, the external gauze portion being brought out of the perineal wound. The sigmoid loop from above is placed over the exposed surface, and in the female the body of the uterus and broad ligaments are adjusted with a few sutures to aid in covering. The upper incision is completly closed, while the perineal opening is narrowed to proper dimensions for drainage by a few sutures.

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[13] Surg., Gynec. and Obstet., Aug., 1906, p. 309.

[14] Rev. de Chir., xxxvi, no. 7.

[15] Surg., Gynec. and Obstet., Aug., 1906, p. 236.

"The end of the sigmoid is left completely obstructed for the first twenty-four hours, after which time the circular suture is cut and the stump everted by the ligature, which is tied around it, and the bowel opened.

"The advantages of the operation herein outlined are obvious. The disease is removed widely with all of its tributary lymphatics, muscles and related tissues. The anus is placed in a position easy of inspection and cleansing; the sigmoid trap obviates the necessity of frequent stools, and the intermuscular incision gives a fair degree of control."

(To be continued.)

It is reported that Professor Neisser, of Breslau, is to return to Java to continue his experimental work on syphilis.

Reports of Societies.

TWENTY-EIGHTH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Held at Niagara Falls, May 31, June 1 and 2, 1906.

President, Joseph W. Gleitsmann, M.D., New York.

First Day, Thursday, May 31, 1906. Opening Session, 10 a.m.

PRESIDENT'S ADDRESS.

Dr. Gleitsmann referred to the early days of the specialty, and to the share which the members of the association had taken in its development. He spoke of the proposed establishment of the International Congress of Rhinology and Laryngology, in connection with the semi-centennial celebration of the work of Tuerck and Czermak. This proposed action had grown out of the dissatisfaction generally felt at the treatment the specialty had received at recent International Medical Congresses; he also referred to the still unsatisfactory status of the teaching of the specialty in many American institutions. A tribute was paid to the memory of the late Dr. Carl Seiler, a former active fellow of the association.

Reference was also made to certain lines of work which had been carried out by different members of the association, particularly, concerning the differential influence of certain irritations on the recurrent nerve, the etiology of diseases of the mucous membranes, the manner of entrance of bacilli through them, and the application of the x-rays to the study of sinus diseases. Dr. Gleitsmann expressed the hope that in the future, laryngotomy would be more frequently resorted to in suitable cases and carried out by the laryngologist, instead of by the surgeon. He said that in the practice of the large numbers of the members of the association, cases of laryngeal neoplasms and of sub-glottic tumors will occur, which cannot be removed by endolaryngeal methods, and that it is a source of greater satisfaction to relieve a patient by our own efforts, than to turn him over to the general surgery.

In conclusion, Dr. Gleitsmann thanked the association, for the honor it had conferred upon him, and declared the Congress open.

HOW FAR ARE ABNORMALITIES OF THE NASAL SEPTUM RESPONSIBLE FOR MALFUNCTION OF THE NOSE?

Henry L. Swain, M.D., New Haven, Conn: The author described the usual provisions of nature for keeping the nasal passages free from irritating and harmful materials. Macroscopic particles are taken care of with comparative ease, but we do not know as much about microscopical particles. In the latter instance, the protecting duty falls on the cells, whose chemical or phagocytic functions are called into play. The protective system may be rendered useless by deformities of the nasal skeleton, which render ready cleansing by sneezing, and blowing, and the free downward flow of fluids practically impossible. Under these circumstances, bacterial growth in the nose may occur with great rapidity. The nasal integrity depends, after all, on the condition of the epithelial cells on the outer wall. Concerning the protection against subtile chemical, electrical and other irritations we are largely ignorant of the manner in which nature works. Nor, moreover, do we know just how and why the vital calls know and appreciate what is harmful, and what harmless. A solution of this riddle gives the key to all physiological phenomena. As a result of repeated attacks of acute rhinitis, a chronic change is set up, and the protective mechanism becomes permanently impaired. The author does not think it logical to lay all the blame of this impairment, as is commonly done, on the nasal septum. Its influence in states of deviation from the normal perpendicular has been over-estimated on nasal function. Septal deviations are often the outcome of inherited facial asymmetry, or arise from exaggerations by the accidents of disease, neglect of teeth, trauma in youth, etc., yet many patients having the misshapen septa live ordinarily long lives without any more nasal disturbance than is experienced by patients having comparatively straight septa. The present views as to the relation of septal abnormalities to nasal malfunction are the natural result of the teaching of recent years. If the septum is so bent as to actually interfere with breathing, there is no doubt as to the course to be followed, but whatever we do, we should accomplish the desired result by as mild measures as possible, with little destruction of the normal epithelium, and with as good preservation of the normal anatomical relations as possible. The author stated that he could not make it seem right to remove turbinal tissue when an exostosis was at fault. It might be easier but it was not logical. Neither was it right to remove turbinal tissue when the problem was to make crooked septa straight. Yet after much experience we are sometimes met with the fact that although we may have done at the time what seemed best in our judgment, the catarrhal condition for which relief has been sought has not been greatly benefited. We should not fall into the habit of laying the whole fault for the catarrh on a slight septal bend. The catarrhal condition is referable in part at least to the conditions of modern life,— dry heat, narrow apartments, late hours, busy work, etc. Often, then, the main thing to bring about is an alteration in the manner of living, and a change in environment. If we confine ourselves to surgical intervention, our ultimate results will be disappointing. We may straighten the septum, plane it off, smooth it down, but yet hypertrophy will return, annual catarrhs continue, and sinus disease occur in spite of all.

SOME OBSERVATIONS ON NON-TRAUMATIC PERFORATIONS OF THE SEPTUM.

Dr. Charles W. Richardson referred to cases without a known etiological factor, and with an indefinite pathological history. In none of this group could the exciting cause be the irritation from acids or chemicals. In only a few was there any history of obstruction. We know that when the anterior inferior portion of the septum is injured, nature's efforts at repair are very unsatisfactory. In addition, to the exposed situation of this area, there seemed to be some additional constitutional condition lessening the normal nutritive activity of the affected structures, so that ordinary irritation worked an unexpectedly great destruction. Such a constitutional influence is seen in typhoid fever, for instance, and the author believed that in the tubercularly-inclined, especially, there was something imparted to the tissues, especially those of the fibrous and epithelial type, which rendered them, when the nutritive changes were impaired, liable to retrogression and destruction. In an analysis of fifteen personal cases, there was found in eleven either direct physical evidence of tuberculosis in the patient, or there was a definite family history of this diathesis. Findings made on the cadaver by Weichselbaum and Hajek confirmed the view taken. Many cases of septal irritation are not followed by perforation. Many endure for years; some heal and some may perforate; but tuberculosis and the tuberculous diathesis impress on various tissues of the body such alteration in their nutritive processes that when the proper stimulus is applied they lead to degenerative changes, which may or may not show the characteristic histological elements of tuberculosis.

NASAL SKIAGRAPHY.

Dr. Cornelius G. Coakley, of New York City, gave an exhibition of skiagraphs, showing various diseased conditions and anomalies of the nasal accessory sinuses and decribed the technical methods employed in their production. He was of the opinion that while in certain instances the results of this method of diagnosis might be very uncertain, yet in other instances it afforded us very definite information as to the size, shape and relations of the sinuses and gave us also very definite information as to the condition of the mucous lining.

THE ULTIMATE RESULTS OF RADICAL OPERATIONS UPON THE ACCESSORY NASAL SINUSES.

Paper by **Dr. D. Bryson Delavan**, New York City. The author commented on the fact that relief has not always been finally afforded by radical operation, that the progress has often been painfully slow, and the ultimate outcome unsatisfactory and disappointing. Unsuccessful cases are not often reported, and statistics calculated to show the relative values of different methods of operation are not attainable. There have been notable exceptions to this rule in the case of the work of some members of the association who have frankly stated their actual results. In some instances, the nasal cavity has assumed a condition to all intents normal as to sensation, and function, yet the patient has been unaware of any unusual change in it, and the progress of time has been unmarked by semblance of accident or relapse. In other cases, the results have not been so fortunate. Sometimes the cure itself has been incomplete; or, again, new foci of disease have developed at times, long after every probability of their appearance has passed away. The ultimate condition is a subject which apparently has been studiously avoided. It cannot be denied that the results in many cases have been brilliant and permanent, but sometimes the formation of crusts persists for years after intra-nasal operation. The undue widening of the nasal cavities may cause the many unpleasant symptoms due to the too free admission of air. A better knowledge of all these results is highly desirable, because, first, if the seriousness of the situation has been overestimated, it is well that we should be re-assured; second, if it has not been overestimated, the best means for its prevention should be studied and applied. Most important of all, through a clear understanding of the dangers, difficulties and discomforts of these more radical cases, the profession will be led to appreciate more fully their importance, and by prophylaxis of the causes of acute sinus disease and early recognition and efficient treatment of it, when it has once appeared, cure the condition, and thus reduce to the lowest possible number the cases which have become fully and hopelessly established as chronic. The establishment of necrosis calls, of course, for the removal of offending tissue. Great responsibility rests upon the practitioner who first sees the case, particularly during grippe seasons, when so much can be done to make the patient comfortable, lessen the severity of the inflammation, and prevent the establishment of the later features of neglected sinus disease. So, also, the possible influence of a specific infection in a given case should lead us to administer the iodide, neglect of which precaution may lead to widespread disaster. In any event, reasonable conservatism in operation and prolonged observation of every case are factors which are indispensable.

A NEW OPERATION FOR EXTREME CASES OF SEPTAL DEFLECTION WITH PRESENTATION OF A SUCCESSFUL RESULT IN AN ADULT PATIENT.

Dr. J. Price-Brown, of Toronto, made a plea for the retention of the substance of the septum, and was not inclined to grant all that the advocates of the submucous resection claimed for the latter procedure. Many cases of perforation had been reported, even in the hands of skilled operators. We do not know what will be in future years the condition of these resected septa. We do not know how the latter will stand the aridity of fevers, typhoids and pneumonias. Therefore, the ideal result would be to so act on the septum, as to relieve it of all tension without removing it, and to replace it with perfect healing in the central plane. The author has been in the habit of making two longitudinal cuts with a thick saw from before, backwards through the septum, making them from the convex side, about half an inch apart, passing through both mucosas, the lower cut being just above the superior maxillary ridge. Rubber splints were then employed to hold the septum in the correct position. Results were fairly good, but the cuts did not destroy the central resiliency of the large curvature from before backwards. Therefore, the author had joined the two incisions by a third one at right angles to them, and the operation might be called the "H" operation. The points to which he wished to draw attention were these: first, that as the curvature of the cartilage from above downwards gives it a greater width than it could occupy if it were upright in its normal position, the two longitudinal cuts should be so managed as to remove two long slips of the septal cartilage, and at the same time be made at an oblique angle, so that the cut edges could slide over each other; second, that the cross of the "H" should be very decidedly oblique, extending at right angles, beyond both of the other and parallel incisions and cutting through both mucosas and cartilage, so that in replacing the segments, the posterior central segment would slide forwards over its fellow, and the anterior one backward. It matters little how these cuts are made if the principle on which they are founded is carried out.

(The clinical history of the case was then read, and the patient was examined by the gentlemen interested.)

Afternoon Session, 3 p.m.

THE ETHMO-TURBINAL CELLS, CLINICALLY CONSIDERED.

Dr. John C. Roe, of Rochester, discussed the theories as to the mode of formation of these cells, in the middle turbinate body, and enumerated the symptoms caused by their distention. We may have pressure symptoms or troubles of a reflex nature. The enlargement of the bone caused by the distended cell is often mistaken for a polyp. The cells are often the seat of an empyema and the source of the pus is erroneously looked for in some one of the accessory nasal sinuses. The condition can be differentiated from an enlargement caused by growths, cysts or simple turbinate tissue hypertrophy, by the use of the probe. Puncture of a supposed polyp may reveal the exact nature of the growth. Treatment chould consist in the removal of all pressure, and the restoration of nasal patency. Removal of the entire turbinate may be necessary, especially if the condition is associated with disease of the posterior ethmoid or frontal cells. If the outer wall of the cell is thin, it may be forced inward, thus leading to a collapse, and obliteration of the cavity in the turbinate.

FRONTO-NASAL ENCEPHALOCELE.

Dr. Frederic E. Hopkins, of Springfield, reported the history of a case of this nature. A child of eleven months was brought to him with a small swelling over the right nasal bone. It was congenital, and had been regarded as a cyst. The fossa on that side seemed obstructed, and seemed to contain constantly a clear watery fluid. Polyps had been removed from this side, three months previously, giving but temporary relief. Dr. Hopkins found a mass in the right naris, extending to the depth of half an inch, and apparently attached to the outer wall near the end of the inferior turbinate. This was removed without incident, with a cold wire snare. Examination now revealed a globular tumor at the level of the middle turbinate, about five eighths of an inch in diameter, perfectly smooth, of a grayish color and semi-transparent. Pressure on the swelling in the naris caused an increase of the swelling over the nasal bone outside. Diagnosis of cerebral hernia was made, and nothing further done at the time. The naris now dropped cerebrospinal fluid at the rate of about four drops per minute. The child became ill on the fifth day, and died of meningitis at the end of two weeks. The report of the pathologist on the tissue removed, was to the effect that it was doubtless a part of the meninges, as it contained more fibrous tissue and cellular elements than an edematous poylp, which it was at first supposed to be.

DISEASES OF THE TRACHEA.

A symposium of diseases of the trachea was opened by **Dr. James E. Newcomb**, of New York City, who spoke of abnormalities, hemorrhages, inflammations and infections. A plea was made for a more extensive use of the mirror in examining the trachea. Various malformations were briefly described. Perichondritis was generally secondary to some infection, as typhoid, tuberculosis or syphilis. Various dermatoses might occur, such as erythema nodosum, herpes, impetigo herpetiformis, erythema multiforme, lichen ruber, and angioneurotic edema. Acute catarrh was generally associated with that of the larynx and bronchi. Dysphagia had by some authors been regarded as a symptom of tracheal inflammation. New methods of tracheal injection were touched on, such as that of Marangos, who injects through the nose, and Mendel who projects the fluid against the side of the pharynx, whence it runs down into the trachea. Ozena might occur primarily in the tube, and several instances of severe stenosis were on record from crust accumulation. Nothing new had been advanced as to the etiology of this affection. Tracheal hemorrhage had been reported by numerous writers, and generally as a sequel of influenza. It was necessary to follow up such cases as they might eventually become tuberculous. But there were cases in which the blood could be seen to ooze from varicose vessels, just below the glottis while the rest of the tracheal walls were perfectly clear. Tuberculosis was generally a feeble episode only, in the laryngeal and pulmonary diseases it accompanied. Primary tuberculosis of the trachea, however, had been observed. True tuberculoma of the trachea had been described twenty-five years ago by J. N. Mackenzie. But few authoritative cases were on record. Syphilitic lesions found in the trachea comprised catarrh, erythema, condyloma, ulcers, pericondritis, cicartrices and gumma. Infiltration in this region might be delayed for years. The use of the bronchoscope, as recently developed, offered the possibility of a greater definiteness of localization of lesion. Each case called for treatment, constitutionally and mechanically, according to its special requirements. It was difficult in clinical practice to separate syphilis of the trachea from that of the bronchi.

TRACHEAL TUMORS.

This phase of the question was discussed by DR. CLEMENT F. THEISEN, of Albany, N. Y. His paper was based on a study of most of the authentic cases of primary tracheal tumors on record, 135 cases being considered. Of these, 89 were benign, and 46 malignant. Of the former, the varieties found comprised fibroma (polyps) lipoma, papilloma, ecchondroma, and chondro-osteoma, adenoma, intra-tracheal struma and lymphoma, of the latter, carcinoma and sarcoma. Particular attention was given by the author to intratracheal struma, ten cases of which were now on record. The majority of papillomata occurred in children, and were undoubtedly congenital. Only one genuine case of lipoma is recorded. Two cases of lymphoma and seven of adenoma were considered. Twenty-four cases of fibroma were found, fifteen of which were pedunculated. In the majority of cases they occurred during middle life. Very little was known as to the genesis of ecchondromata. Of the malignant growths, primary carcinoma occurred most frequently in the medullary form, but occasionally as a cylindroma. In a number of instances the growth originated in the tracheal mucous glands. One case seemed to be a malignant degeneration of an original struma, and in this case, an extensive resection of the trachea was performed. Cancer favors the male sex. Of sarcoma, the author had been able to find records of 18 cases. While endo-tracheal operations have been performed several times, they offer little chance of permanent success. The sexes suffer alike in this form of malignancy, young people rather than old. The author then discussed the etiology, symptomatology diagnosis and treatment of tracheal tumors in general. An extensive bibliography was appended.

(*To be continued.*)

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Book Reviews.

The Urethrotomies and Kidney Capsulotomy, in Diseases and Injuries of the Urinary Organs. By REGINALD HARRISON, F.R.C.S., Past Vice-President and Huntarian Professor of Pathology and Surgery, Royal College of Surgeons; Member of the Court and First Mitchell Banks Memorial Lecturer, University of Liverpool; Consulting Surgeon to St. Peter's Hospital, London; Honorary Fellow of the American Surgical Association; Knight of Grace of the Order of St. John of Jerusalem in England; First Class of the Imperial Ottoman Order of the Medjidieh. New York: William Wood & Co. 1906.

Mr. Harrison's contributions to medical literature are always replete with useful and practical information, marked by soundness of judgment and clear expression of well balanced opinion. The present little volume bearing the above title is no exception to the rest of his writings.

Under "The Urethrotomies" he considers the various conditions to the relief or cure of which internal and external urethrotomy or both combined are applied, beginning with urethral stricture and urinary extravasation and continuing with urinary fistulæ, false passages, ruptured urethra, stone in the bladder and perineal prostatectomy and prostatic calculus. In connection with internal urethrotomy for stricture we are glad to note that Mr. Harrison pays tribute to the value of the work of the late Dr. Fessenden Otis, of New York. He does not, however, appear to have followed the teachings of Otis with regard to the normal caliber of the urethra and the extent to which the dilatation immediately following upon the incision should be carried, for he refers to the size of the sound which he recommends for this purpose as being fifteen of the English scale only, which is several numbers smaller than the normal caliber of the passage as demonstrated by Otis, which was thirty-two of the French scale in the average individual and but rarely smaller than this. Mr. Harrison is a believer in the treatment of this condition by internal urethrotomy in properly selected cases, and presents the results of a considerable number of cases in which patients have been looked up and examined at various times subsequent to the operations. He refers again to the advantages to be derived from the combined external and internal operations in connection with strictures not too tight to admit the passage of the filiform instrument and which method of treatment has been largely practised by him. With his views upon this subject we are in entire accord.

Mr. Harrison has somewhat modified, we are glad to see, his views as to the value of the perineal urethral approach to the prostate for the purpose of removing that gland by the operation of total prostatectomy, since he conceded in this present publication the advantages to be derived from this method of approach in a larger proportion of cases than he was formerly inclined to do. In so doing he approaches the more closely to the views held by American and French surgeons and turns away from the strong prejudice that has marked the English practice in favor of the suprapubic route.

This work of Mr. Harrison tempts to a more extended review than would be altogether desirable. We need only to add that we commend the volume to students and practitioners alike as one from which much valuable and practical knowledge is to be gained.

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PASTEUR INSTITUTE REPORT.—Dr. Benjamin M. Worsham, Austin, Superintendent of the State Pasteur Institute, reports that during the first fiscal year 81 patients were treated without the development of a single case of hydrophobia, and that during the second year 254 patients were treated, 226 of whom came from Texas, with 2 deaths. The total fees collected were $2,410 and the disbursements were $1,039.36.—*Jour. Am. Med. Asso.*

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THE TREATMENT OF BACTERIAL DISEASE BY THE THERAPEUTIC INOCULATION OF BACTERIAL VACCINES.

The recent lectures at Johns Hopkins on the Herter foundation dealt with the general subject of bacterial vaccines and the therapeutic results of the inoculation of them. The lecturer, Sir Almroth E. Wright, of St. Mary's Hospital, London, with a contagious enthusiasm discussed this field of work in which he himself has long labored, and made many valuable contributions. In addition to the lectures a number of demonstrations of very ingenious methods of technique were given by the lecturer and by his assistant, Dr. Ross.

Among the protective agencies of the organism Wright groups under the term "bacteriatrophic" substances, the bacterio-agglutinins, the bacteriacidal substances, the bacteriolytic substances and the opsonins. He appears to consider the opsonins, *i.e.*, substances in the serum which act on bacteria in such a way as to prepare them for phagocytosis, as the more important index of the resisting mechanism of the body against bacterial infections, and it is these in particular which he has studied.

First he had to devise a method for quantitating the opsonins so as to allow a comparison between various individuals. The average number of bacteria taken up by leucocytes after being acted on by the serum of a normal person forms the standard with which is compared the number taken up after being acted on under similar conditions by the serum of the person under examination. By this means a numerical quantitation, the opsonic index is obtained. Knowing the opsonic index of a case and the infecting bacteria, the time of the inoculation, the kind of bacterial vaccine and the suitable quantity can be determined.

Wright considers the opsonins specific in the sense that with a staphylococcus infection, for example, the opsonic index for staphylococci will vary from the normal, while that for other bacteria will be within normal limits, and that to influence the opsonic index by bacterial vaccines a vaccine prepared from an organism of the same kind as the infecting organism must be used.

In a case of bacterial infection the opsonic index may be low or may be high. The latter Wright interprets as the result of an auto-inoculation with toxic substances produced locally by the infecting bacteria. When the index is high, inoculation does little good; if the amount of vaccine used is too large, a marked fall in opsonic index (negative phase) will follow, and the resistance is proportionately lowered; if too small a dose is used, there is little or no result. Consequently for successful results the opsonic index must be determined from time to time, and the number and amount of bacterial inoculations be intelligently adapted to the case in light of these findings. In some cases the opsonic index remains high throughout, though the case results fatally; in such no improvement can be expected from inoculation.

The bacterial vaccines used by Wright are prepared by heating both cultures of bacteria to 60°, until all of the bacteria are killed. The dose is determined by enumerating the bacteria in a cubic centimeter of a given emulsion and inoculating an amount sufficient to give a dose of the desired number of dead bacteria, ordinarily a certain number of million of bacteria. In tuberculosis, tuberculin in small doses is used instead of dead bacteria prepared as above.

A moment's consideration of the methods here briefly outlined will convince any one that a large amount of time and technical ability is required for the successful conduct of therapeutic inoculations of bacterial vaccines. However much Wright's ingenious technique renders this less formidable than might seem the case, still laboratory equipment and men trained in laboratory methods are essential, and at present the technique must be regarded as far from being a simple clinical procedure.

Wright has treated by his method cases of infection with staphylococcus, streptococcus, colon bacillus and other bacteria, Malta fever, and local tuberculosis (not pulmonary tuberculosis). The results which he claims are certainly very striking and the method should have an extensive, careful trial, as it bids fair to add a powerful weapon in the battle against bacterial diseases.

Wright has worked almost entirely with patients, and few of his claims have been submitted to the control of animal experimentation. The latter he appears to regard as of comparatively little importance, a viewpoint on which he will encounter much healthy difference of opinion in this country and in Germany. It would seem to us that animal experimentation should be undertaken in order to better understand numerous points involved in his theory. Until such studies supplementing careful clinical observations are made, we should prefer to withhold consent to some points involved in Wright's work. At the same time it is certain that Wright has already contributed very much to medical science and that his work is replete with many most suggestive ideas of great practical import.

CALCIUM OF THE BLOOD: ITS CLINICAL IMPORTANCE.

Dr. Wright probably first became known to American medical men for his method of determining the coagulation time of the blood. He has since improved his method by using thin, calibrated, capillary glass tubes and by making his observations at body temperature. Wright has studied the coagulation time in many conditions and of late has supplemented these observations by a determination of the calcium content of the blood by a simple clinical method for which he claims sufficient accuracy to govern therapeutic procedures.

He finds that he can influence therapeutically the calcium content of the blood, and to the calcium he attaches the greatest importance in the phenomenon of coagulation. By giving citric acid the coagulability of the blood can be decreased; by giving calcium chloride or calcium lactate it can be increased.

To a decreased coagulability of the blood Wright attributes urticaria, chilblains, functional albuminuria and certain forms of headache, in all of which he assumes as the principal lesion an increased transudation of plasma resulting from the decreased coagulability of the blood. In these conditions he claims the most striking results from the use of calcium, preferably as calcium lactate, provided the calcium be absorbed, which fact he determines by estimating the calcium content of the blood.

In cases of thrombosis Wright believes much can be gained by giving citric acid, thus reducing the coagulability of the blood and preventing the further depositions of fibrin. If this is done the blood stream can wash the corpuscles, which constitute a large bulk of the thrombus, from the fibrin framework of the clot and allow it to contract. In typhoid it is advisable, according to him, to anticipate the thrombus formation, by doses of citric acid whenever examinations of the blood indicate a rise in coagulability. Under these circumstances he believes the use of milk and lime water decidedly dangerous.

A number of Wright's observations on coagulation time appear to differ from those of other observers using different methods of observation. His clinical applications have in part been tried by others with poor results. It is possible that in the cases in which others have found little or no results from the use of calcium that the cases in question had a very low absorbing power for calcium salts. Again, numerous other factors than the calcium salts are concerned in the coagulation of blood and these may play a part in cases uninfluenced by calcium therapeusis.

The methods used by Wright, however, are not difficult of application, and though they perhaps lack in exactness they deserve a wider application with a view to testing more completely their therapeutic usage.

A BERLIN HOSPITAL IN HONOR OF VIRCHOW.

After many years of patient waiting a hospital in memory of Virchow has been dedicated in Berlin. So slow has been its construction that it had become the butt of newspaper paragraphers, but finally it has been completed and both from the architectural standpoint and from that of utility is probably the most monumental institution of its kind in the world. Its cost has been in the neighborhood of thirty million marks contributed by the citizens of Berlin. It is located in the extreme northern part of the city where a few years ago but few buildings of importance stood but which has since become one of the most progressive and flourishing portions of the city. Many other buildings devoted to the purposes of science are erected in the immediate neighborhood, among them being the Institute of Zymology, the Experimental Agricultural Station and the Royal Pasteur Institute for Contagious Diseases.

In architecture the new hospital is a masterpiece of dignity and serviceability. It is, in fact, regarded as essentially faultless, and the Emperor has personally congratulated the architect, Herr Ludwig Hoffmann, upon the accomplishment of his great work. The architecture has happily combined Middle Age traditions of external form with the most modern requirements of hospital design. The buildings comprising the hospital, which, as has been suggested, is more properly spoken of as a hospital city, are sixty in number. The administration building dominates the architectural design, and having passed beyond it, the other buildings appear, situated in an elaborately laid out park, at the further end of which another building of massive architecture completes the general design. The individual wards, or so-called "sick barracks," are so arranged that the patients may be easily taken into the open air and yet be so far separated from the general work of administration that no disturbance can arise from that source. The streets connecting and in relation to these individual buildings are so arranged as to conduce to the greatest efficiency of service without bringing the household traffic into prominence. Although esthetic details have not been neglected, each has a special significance. Beauty and usefulness have been shown not to be incompatible. The interior of the buildings is as satisfactory as their exterior. Color and proportions and furniture conduce to the general satisfactory effect. In general, the hospital is said to be much as Virchow would have liked it to be, and certainly a more fitting memorial to his genius could not be devised. The hospital will, no doubt, long stand as an embodiment of the completest utility, combined with an esthetic completeness which has not before been equalled.

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A "CITY OF CRIME."

Mr. Thomas S. Mosby, pardon attorney to Governor Folk, thus characterizes the Missouri State Prison at Jefferson City, which has at no time during twelve years past had less than 2,000 inmates. It is the largest prison in the United States, chiefly because it is the only one in Missouri. The field is thus a rich one for the study of criminology, and Mr. Mosby has gathered many valuable statistics, which tend to antagonize some rather deeply-rooted theories.[1] The following observations are based upon facts concerning 1,794 convicts, who were received during a recent two-year period:

Nearly one half (852) had led temperate lives. The prohibitionist's assumption is not here borne out that rum is responsible for a very large proportion of crime. No doubt many a physician, who in his hospital and dispensary experience has worked among the "submerged classes," will agree that many alcoholics reach that state not so much from a vicious propensity as from an effort to restore their bodies, exhausted by poverty and insanitation, sufficiently to meet the disheartening environment from which they cannot escape.

About 73% of these convicts had received a fair education, and 71% belonged originally to nine religious organizations. One would hardly infer from this computation that these factors in civilization had been deterrent. The percentage of absolute illiteracy was 26.5, — four times as great as the average among the non-criminal population of Missouri. If by illiteracy we mean that the brain conditions essential to normal psychic development were absent, we must fairly infer that physical imperfection and immorality have some logical relation, and that those physicians and other philanthropists are justified who would decrease immorality by the improvement of physical conditions, either hygienically or by operation.

Of these 1,794, all but 105 were native born. Hence those who claim that our depraved elements are largely immigrant would seem to be refuted. Nearly one third among the male prisoners were negroes, — not a large proportion, we should say, in a state perhaps half of whose population is made up of that race.

Mr. Mosby found the age of greatest criminality to be between twenty and twenty-five, and, singularly enough, sexual crimes appear to have been proportionately small during these years. Less than one third of the whole number had been married; a datum which we cheerfully lay to the credit of marriage and the benignant influence of home life. Eighty-six per cent were serving a first term; only 14% were serving a second, or were old offenders. One might deduce, then, that prison discipline *does* deter from further crime. One third came from cities containing one fourth of the population of the state. This estimate conflicts with that of other criminologists; Mr. H. M. Boies, for instance, makes it as high as 90%.

Evidently, then, if so many positions relating to criminology are unsettled, it might be best to agree that the purpose of conviction should be the protection of society rather than the punishment of the criminal. For it is very patent to the fair-minded that the conditions leading to incarceration have in many a case been beyond the prisoner's will or power to control. It is a fine saying, that of the French, — *To comprehend all is to forgive all.*

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[1] North American Review Oct 1, 1906

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MEDICAL NOTES.

Simple Life a Failure. Our sybaritic correspondent of Oct. 18 will doubtless rejoice in the following special cable despatch from Berlin to the *New York Sun* of Oct. 22:

"The simple life has proved too complex for a group of German authors, painters and philosophers who tried to follow it on the Island of Kabakon, in the Bismarck Archipelago. They were eager to start life afresh under physical conditions approximating those of primitive man, and they formed a colony under the name of Sun Brothers, in allusion to their wish to enjoy permanent sun baths in the costume of Adam. Their food was to be limited to nuts and fruit, and their labor was to consist of tilling the land and tending herds.

"The enterprise proved as brief as it was simple. Herr Lutzow, an author, and Herr Engelhardt, a philosopher, died from the combined result of exposure from not wearing clothes and exhaustion from an inadequate diet. The natives killed Herr Bettman, a philosopher. The others have returned in despair to civilization."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Oct. 24, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 38, scarlatina 30, typhoid fever 28, measles 2, tuberculosis 30, smallpox 0.

The death-rate of the reported deaths for the week ending Oct. 24, 1906, was 17.75.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Oct. 20, 1906, is 206, against 179 the corresponding week last year, showing an increase of 27 deaths, and making the death-rate for the week 17.84. Of this number 94 were males and 112 were females; 203 were white and 3 colored; 132 were born in the United States, 69 in foreign countries and 5 unknown; 48 were of American parentage, 130 of foreign parentage and 28 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 55 cases and 5 deaths; scarlatina, 23 cases and 0 deaths; typhoid fever, 43 cases and 5 deaths; measles, 2 cases and 0 deaths; tuberculosis, 28 cases and 15 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 21, whooping cough 1, heart disease 17, bronchitis 3 and marasmus 10. There were 18 deaths from violent causes. The number of children who died under one year was 45; the number under five years 63. The number of persons who died over sixty years of age was 55. The deaths in public institutions were 60.

There was 1 death reported from cerebrospinal meningitis during the week.

Organic Chemistry a Requirement for Admission to the Harvard Medical School. — Beginning in September, 1907, organic chemistry will be one of the required studies for admission to the Harvard Medical School. The course in the academic department known as Chemistry 2 will satisfy this requirement.

A Commendable Effort toward Cleaner Streets. — Active measures are being taken by Commissioner O'Meara of the Police Department to enforce the State ordinances regarding expectoration in public places, particularly on the sidewalks. Any effort to abate what has become a public nuisance and to improve the condition of our streets in general should receive the hearty support of right-minded citizens. The task is a difficult one for obvious reasons, but it is only by continual insistence upon the recognition of the law as it stands that improvements may be looked for. Conditions are better than they were.

NEW YORK.

Dedication of New Pavilion of St. Luke's Hospital. — On Oct. 18, St. Luke's Day, Bishop Greer, of the Episcopal Church, assisted by two other bishops, dedicated the new pavilion of St. Luke's Hospital, on Cathedral Heights, and unveiled a tablet inscribed with the name of the donor. This addition, which is designed for private patients and is one of the largest and most completely appointed of any hospital pavilion in the country, is the gift of the widow of Henry J. Plant, and, with its equipment, is understood to have cost $500,000. The Plant Pavilion is the sixth pavilion to be erected at St. Luke's, and the plan for the completed hospital buildings calls for four others, which will be added from time to time, when the necessary funds are forthcoming.

Final Result of a Snake Bite. — Some twenty years ago, when he was the proprietor of an animal shop, Donald Burns, at present keeper of the Bird House in the menagerie in Central Park, was bitten in the left hand by a boa constrictor which he was handling. The wound healed up and he thought no more about the matter until recently, when, noticing a little hard mass in his *right* thumb, he made an incision and discovered the boa's fang, which must have broken off in the original wound.

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Current Literature.

Berliner klinische Wochenschrift, No. 36.
Sept. 3, 1906.

1. **Marmorek, A.**: *The Absorption of Dead Tubercle Bacilli.*
2. **Bing, R.**: *Blood Pressure in Nervous Diseases.*
3. **Davidsohn, E.**: *Disease of the Caruncula Sublingualis.*
4. **Weichardt, W.**: *The Serum Treatment of Hay Fever.*
5. **Keller, A.**: *The Effect of an Exclusively Carbohydrate Diet on Children* (Mehlkinder).
6. **Rosenbach, O.**: *Does the Modern Diagnosis of Syphilitic Affections Comply with Scientific Requirements?* (Concluded.)

1. Marmorek's experiments show that, contrary to the commonly accepted statement, dead tubercle bacilli can be absorbed after subcutaneous injection. He accomplished this result, entirely without local reaction, by using a very finely divided emulsion of the bacilli and by adding thereto three times its bulk of his antituberculosis serum.

2. Bing investigated chiefly the vasomotor type of neurasthenia, using the Gaertner tonometer. He found in most cases an increase in blood pressure, with increased instability under different conditions of posture, emotion, etc. The trigeminus reflex, *i. e.*, the rise of blood pressure on irritation of the nasal terminations of that nerve, was usually increased.

3. Davidsohn reports a case of inflammatory swelling of the caruncula sublingualis (mouth of the duct of Bartholini).

4. Weichardt discusses the mode of action of graminol, a preparation of which he is the discoverer, used for hay fever. Graminol is concentrated serum of cattle, obtained during the hay fever season. It is said to contain bodies (Hemmungskörper) which inhibit the action of the toxins of the various pollens which are the exciting cause of the disease. The German Hay Fever Association have reported favorably on the preparation (75% relieved).

Sept. 10, 1906.

1. **Ruediger Rydygier, L. R. v.**: *The Surgical Treatment of Gastric Ulcer.*
2. **Argutinsky, P.**: *On Disturbances of Growth of the Bones in Myxedema.* (Continued article.)
3. **Schulze, W.**: *The Spirochete as Stained by the Silver Method.*
4. **Friedenthal, H.**: *The Finding of Spirochetes in Cancer and in Syphilis.*
5. **Zarniko, C.**: *The Treatment of Hay Fever with Pollantin.*

1. Ruediger considers resection of the ulcer the operation of choice in gastric ulcer, and superior to gastroenterostomy for the following reasons: (1) Subsequent hemorrhages and perforations are far less frequent; (2) the danger of cancer developing later is eliminated (5% to 30% of ulcers become carcinomatous later). The mortality in skilled hands is low (3% Jedlicka, 5% Lambotte). Demonstration of a woman in whom Ruediger performed resection twenty-five years ago.

3. Schulze has found that the normal pancreas and adrenal of rabbits, when stained by the Levaditi silver impregnation method, show structures very closely resembling those described by various authors as spirochetes. He was also able to find such spiral-shaped bodies in the cornea of rabbits in which inflammation had been excited by inoculating street dirt. He claims that the bodies which have been reported as spirochetes on the strength of the silver method are nothing but elastic or nerve fibers.

4. Friedenthal likewise raises a note of warning against conclusions as to the presence of spirochetes from silver preparations, and gives pictures of spirochete-like structures observed by him in cancer.

5. Zarniko publishes the results of the use of Dunbar's pollantin in 492 cases of hay fever. (Pollantin is an antiserum obtained by injecting horses with the toxins of the pollen of rye.) The treatment was completely successful in 61.3%, in that the attacks did not take place, or, if already present, were aborted; in 23.1% the symptoms were ameliorated, and in 15.6% no benefit was derived. In some cases the symptoms were aggravated, a result probably partly due to faulty use of the pollantin, partly to idiosyncrasy. For diagnosis, Zarniko recommends the use of Dunbar's "pollentoxin." A positive reaction consists in itching and redness of the conjunctiva on local application, symptoms which may be aborted at once by the use of pollantin.

Archiv für Klinische Chirurgie. Bd. 80, Heft 2.

15. **Liek, E.**: *Experimental Research on the Question of Heteroplastic Bone Formation.*
16. **Hofmann, M.**: *The Treatment of Bony Ankylosis of the Elbow Joint.*
17. **Graser, E.**: *The Technic of the Radical Operation on Large Umbilical and Ventral Hernias.*
18. **Casper**: *Unusual Hemorrhage from the Kidney and Renal Pelvis.*
19. **Brentano, A.**: *Gunshot Injuries of Blood Vessels and their Treatment.*
20. **Burrage, R.**: *The Technic of Uranoplasty.*
21. **Frangenheim, P.**: *The Relation Between Myositis Ossificans and the Callus Following Fracture of Bones.*
22. **Wrede, L.**: *On the Excretion of Bacteria by the Sweat.*
23. **Rehn, L.**: *Thymus Stenosis and Thymus Death.*
24. **Brunner, C.**: *The Excretion of Microbes by the Sweat Glands.*
25. **Braun, H.**: *Voluntary Dislocation of the Hip.*
26. **Wrede, L.**: *Osteomyelitis due to Transportation of Actinomycosis through the Circulation.*
27. **Jurcic, F.**: *Double Accessory Thumbs.*

15. Following ligature of the vessels of the rabbit's kidney there occurs extensive necrosis with subsequent calcification. In this calcified kidney, though far from any osteogenetic tissue, there is formed quite regularly true bone and true bony medulla. It is formed at those places where young connective tissue rich in cells impinges on calcified tissue. The cells dissolve the calcium and gradually change into bone cells, while the calcium helps to form the intercellular substance. The medulla is formed from the connective tissue. This newly formed bone gradually undergoes necrosis. By these results the theory that the presence of bone in various organs is due to embryonal remains is disproved.

16. After reviewing the various substances which surgeons have interposed between the articular surfaces of ankylosed joints to restore motion by preventing further adhesions, Hofmann reports a case of bony ankylosis of the elbow joint in which he interposed pieces of periosteum taken from the tibia. The end result was excellent. Experiments are quoted showing the marked vitality of transplanted periosteum, which should be excised carefully together with its osteoblastic layer. Motion is restored in joints thus treated with much less pain during the postoperative manipulations. Though successful, it is questionable if sufficient periosteum could be found available for the treatment of such large joints as that of the knee. In the prognosis of ankylosed joints, those with some portions of cartilage remaining offer a much better outlook for future motion than when this is wholly absent.

17. In the treatment of such extensve hernias Graser employs a transverse incision. After reduction of the

hernial contents and excision of the sac, the sheath of the recti is split at their inner border and the muscles mobilized by blunt dissection, so that they may be made to meet again at the middle line. The posterior rectus sheath and peritoneum are closed accurately in a vertical line; the recti muscles are also held approximated by sutures while the anterior rectus sheath is closed transversely, the lower edge being lapped under the upper. Both silk and iodized catgut have been used with equally good results. Much stress is laid on the thorough preparation of the patient before operation, which in one instance was continued for a month and consisted of rest in bed, catharsis, and the wearing of weights on the hernia to partially reduce its size.

18. Seven cases are reported in which the only signs or symptoms were those of hematuria. In four the diagnosis was found to be chronic parenchymatous nephritis though no albumin or casts were found till long after the hematuria had occurred. In three of the cases this was from only one kidney though both were involved in the pathological process. The other cases, though showing various minor pathological and microscopical changes, are best classed as "essential renal hemorrhage." The diagnosis between this condition and that of nephritis without casts or albumin, a small hypernephroma, or papilloma of the renal pelvis, is extremely difficult and often impossible before operation.

20. In sixteen cases of operation for cleft palate Burrage got primary union in 50%. He employs a suture in two layers, — the first a continuous buried stitch after Halsted, the second interrupted.

23. A large hyperplastic thymus can make pressure on the mediastinal contents, most frequently on the air passages, more rarely on the heart and blood-vessels. Stenosis of trachea and bronchi from such cause is a definite clinical disease, not to be confused with spasm of the glottis. It is more common than has been thought. The symptoms vary, according to the degree of stenosis, from slight infantile stridor to dangerous dyspnea, or from slow suffocation to sudden death by total compression of the air passage. There is a family tendency to the disease. Operation to relieve the pressure is the only treatment. The gland is exposed and held away from the trachea by sutures, or if this is insufficient, a portion of it should be excised. It cannot be shelled out by blunt dissection. It is best not to use an anesthetic. Tracheotomy is not indicated because the obstruction is too low to be thus relieved.

26. Report of a case of pulmonary actinomycosis in which, contrary to the usual method of spreading by continuity, a focus was found in the femur, undoubtedly due to metastasis through the blood-stream.

Deutsche medizinische Wochenschrift, No. 39.
Sept. 27, 1906.

1. Horstmann: *The Treatment of Disease of the Conjunctiva.*
2. Peschel, M.: *A New Aseptic Dropper.*
3. Schirbach, P.: *Clinical Experience with Proponal.*
4. Müller, O.: *The Examination of the Function of Arteries.* (Concluded.)
5. Neisser, M., and Sachs, H.: *Remarks on the Research of Professor Uhlenhuth on the Differentiation of Blood.*
6. Klieneberger, C.: *The Occurrence of Hemoglobinophilic Bacilli as Saprophytes.*
7. Dunger, R.: *Russo's Methylene Blue Test as a Substitute for the Diazo Reaction.*
8. Werner, R., and Lichtenberg, A.: *The Effect of Cholin Injections on Pregnancy.*
9. Baratynski, P.: *The Treatment of Suprapubic Incisions of the Bladder.*
10. Eichel, E.: *Two Stab Wounds of the Diaphragm.*
11. Schlesinger, F.: *The Glénard Corset.*

3. Proponal or urea dipropylmalonyl is an organic derivative of urea, and belongs to the same class with veronal. It was first recommended by Fischer and v. Mering as a hypnotic. Schirbach reports good results with proponal in simple insomnia and moderate degrees of excitement. The dose is 0.3 to 0.5 gm. (5 to 7½ gr.). No untoward symptoms were observed.

6. Klieneberger believes that the differentiation of the various influenza-like bacilli found in bronchitis, whooping cough, etc., from the true Pfeiffer's bacillus, is impossible with present methods. He reports two cases in which the influenza bacillus was present as a saprophyte: in the contents of an abscess of the pancreas, and in the urine of a case of carcinoma of the bladder, respectively.

7. In 1905 Russo published a new test to take the place of the diazo reaction. It consists in the appearance of a green color on the addition of a dilute methylene blue solution to the urine. Dunger has found that this reaction is of no value and depends entirely upon the amount of urinary pigment present.

Münchener medizinische Wochenschrift, No. 39.
Sept. 25, 1906.

1. Heilbronner, K.: *Isolated Apractic Agraphia.*
2. Kelling, G.: *Pernicious Anemia and Leukemia.*
3. Stickler, A.: *Spontaneous and Postoperative Implantation Tumors.*
4. Kramer, H.: *The Transplantation of Human Ovaries.*
5. Pfeiffer, C.: *Chloroma of the Skull.*
6. Schreiber, E., and German, H.: *The Action of the Mercury-Quartz Glass Lamp.*
7. Joseph, E.: *The Early Prophylactic Effect of Passive Hyperemia on Infected Wounds.* (Concluded.)
8. Fleiner, W.: *Indications for the Choice of Mineral Waters in Disease of the Digestive Tract.* (Concluded.)
9. Voelcker: *The Opening of the Institution for the Experimental Investigation of Cancer in Heidelberg.*
10. Struck, B.: *Dentistry among the Natives of Africa.*

2. Kelling has made biochemical experiments in cases of pernicious anemia and leukemia, on the basis of which he considers these diseases closely allied to malignant disease.

4. Two cases are reported in which an attempt was made to relieve symptoms of premature or artificial menopause by implantation of ovaries. These were taken from women who were the subjects of osteomalacia (as a therapeutic measure), and immediately transferred from one abdominal cavity to the other. The results were either negative or inconclusive.

5. Pfeiffer reports a case of chloroma of the skull in a child four years old. The cardinal symptoms of this disease are: (1) Exophthalmos, usually bilateral; (2) affection of the ear, with swelling of the temporal region; (3) anemia, with swelling of the glands, especially those of the neck, sometimes the blood picture of lymphatic leukemia; (4) the rapid course and youth of the patient. This symptom-complex is fairly characteristic; the diagnosis becomes certain if green nodules appear on the skin or mucous membranes, or if an operation reveals the presence of tumors of a green color.

7. Joseph reports twenty cases of suppurative and allied processes from Bier's clinic in which stasis-hyperemia proved a very important adjuvant to the general surgical treatment. The cases comprise suppuration in the scalp, hand and knee joint, as well as compound fractures.

8. In an interesting article, Fleiner analyzes the effect of the different mineral waters on the stomach and the intestines, and discusses the indications in the choice of a watering-place. The drinking of warm mineral waters has a sedative effect on the digestive tract, and is indicated in all cases of increased peristalsis. The cold waters, on the other hand, stimulate peristalsis. Carbonic acid gas increases peristalsis and diuresis; it therefore enhances the action of cold water. Waters containing sodium chloride should be given in cases with deficient HCl secretion, not only to supply material for formation of hydrochloric acid, but also to stimulate the pancreatic secretion (Pawlow). Alkaline waters have the property of dissolving mucus and of checking secretion, and are of benefit in catarrh of the digestive tract; also in hyperacidity. Lastly, the saline waters cause the secretion of fluid into the intestinal canal, and by this means increased peristalsis; they are indicated especially in hydrops and cardiac insufficiency. Obesity is not affected by the drinking of mineral waters.

9. On the 25th of September, 1906, there was opened in Heidelberg a new institute for the experimental study of

cancer, chiefly owing to the energy of Czerny. It consists of a hospital for the surgical treatment of cancer, together with fully equipped laboratories for chemical and histological research and for animal experimentation.

British Medical Journal.

Oct. 6, 1906.

1. **Walker, Norman**: *The Place of Dermatology in the Medical Curriculum.*
2. **Hyde, J. N.**: *The Influence of Light Hunger in the Production of Psoriasis.*
3. **Johnston, J. C.**: *Evidence of the Existence of an Autotoxic Factor in the Production of Bullous Disease.*
4. **Fordyce, J. G.**: *Demonstration by Lantern Slides.*
5. **Robinson, A. R.**: *Errors in the Treatment of Cutaneous Cancer.*
6. **Taylor, R. W.**; *The Evolution of Intraprimary Lesions of Syphilis: Successive Chancres and Prodromal Syphilides.*
7. **Gilchrist, T. C.**: *A Case of Pityriasis Rubra followed by Gangrene of the Left Foot and the Distal Half of the Right Hand.*
8. **Corlett, W. T.**: *Dermatitis Vegetans.*
9. **Bulkley, L. D.**: *On the Wrong and Right Use of Milk in Certain Diseases of the Skin.*
10. **Chambers, G.**: *Observations on the Etiology and Treatment of Eczema.*
11. **Houston, T.**, and **Rankin, J. C.**: *The Blood in Relation to Skin Diseases.*
12. **Bryce, P. H.**: *The International Co-operation in the Inspection of Emigrants and Immigrants.*
13. **Drennan, Jennie G.**: *The State Control of Health.*
14. **McGill, A.**: *Legislation Regarding Food Preservatives.*
15. **Johnson, H. L. E.**: *National Supervision and Standardization of Food.*
16. **Spooner, W.**: *Sailors' Food.*
17. **Braithwaite, P. F.**: *A Case of Poisoning by Pennyroyal; Recovery.*
18. **Hellier, J. B.**: *Rupture of the Vagina in Labor.*
19. **Howe, J. D.**: *A Case of Post-mortem Cæsarean Section.*
20. **Gordon, J. F.**: *A Case of Recurrent Uncontrollable Vomiting Ending in Death.*
21. **Law, R. R.**: *A Case of Ovarian Pregnancy.*
22. **MacAlister, Donald**: *The General Medical Council: Its Powers and Its Work.*
23. **Byers**: *Medical Women and Public Health Questions.*
24. **Teale, T. P.**: *A Retrospect.*
25. **Godlee, R. J.**: *The Past, Present and Future of the Medical School of University College.*
26. **Thomson, H. C.**: *Hospitals and the Public.*
27. **Alcock, N. H.**: *The Theory and Practice of Medical Education.*
28. **Pawlow, Ivan P.**: *The Huxley Lecture. The Scientific Investigation of the Psychical Faculties or Processes in Higher Animals.*

11. Houston and Rankin give some interesting observations where examination of the blood, particularly Wright's opsonic index, and the coagulation time have proved indications for treatment. In cases of acne where a staphylococcus was isolated from the pustules, the opsonic index to this organism was low; a vaccine of dead staphylococci was injected with remarkably good results. In one case of acne the alkalinity of the blood was found to be reduced; sodium lactate for ten days caused a complete disappearance of the skin lesion. In lupus the opsonic index to the tubercle bacillus gave important aid. With a persistent low index, a case will not respond to any form of treatment, but after the index is raised by tuberculin injection, the Finsen ray and other methods of treatment succeed well.

The Lancet.

Sept. 29, 1906.

1. **Waugh, G. E.**: *A Lecture on Pharyngeal Abscesses.*
2. **Starling, Hubert T.**: *Observations on the Arterial Blood Pressure in Heart Disease.*
3. **Andrewes, F. W.**, and **Horder, T. J.**: *A Study of the Streptococci Pathogenic for Man.*
4. **Duff, D.**, and **Allan, T.**: *Thoracotomy for Traumatic Hemothorax Due to a Wound of an Intercostal Artery.*
5. **Taylor, H.**; *Two Cases of Hepatic Abscess Treated by the Transpleural Operation.*
6. **Stock, P. G.**: *Endemic Hematuria.*
7. **Alexander, D. M.**, and **Donaldson, R.**: *A Case of Ainhum.*
8. **Cleland, J. B.**: *The Study of a Case of Plague.*
9. **Colt, G. H.**: *The Suprapubic Dressing.*

1. Waugh speaks of the difficulty of an early diagnosis of pharyngeal abscesses. Tubercular abscesses are the only ones originating in the center of the pharynx and spreading upward. They should be opened from the neck outside and the lining membrane carefully scraped out. Non-tubercular abscesses he divides into two classes, intra- and extra-pharyngeal. The former originate from some infection of the tonsil but point in the center of the pharynx; the latter arise from an infected gland and usually point outside. In the early stages these abscesses give rise to no symptoms; later there is the peculiar muffled cry and difficulty in swallowing.

2. Starling has studied blood pressure with particular reference to heart disease, compensated and uncompensated. He used Martin's modification of the Riva-Rocci instrument. In no case, no matter how bad, did he find the pressure below normal; he divides his cases into two classes: (1) Those with a normal blood pressure, 100 to 125 mm. of Hg; (2) those with a high pressure, 130 to 280 mm. He describes numerous cases.

Oct. 6, 1906.

1. **Pawlow, Ivan P.**: *The Huxley Lecture on the Scientific Investigation of the Psychical Faculties or Processes in the Higher Animals.*
2. **MacAlister, Donald**: *The General Medical Council: Its Powers and Its Work.*
3. **Alcock, N. H.**: *Theory and Practice of Medical Education.*
4. **Bisson, A. O.**: *The Injection of Antitoxin in Diphtheria by the Intravenous Method.*
5. **Potts, W. A.**: *Notes on Purin-free Diets.*
6. **Anning, J. J.**: *Another Presumed Case of Acute Yellow Atrophy of the Liver.*
7. **Alexander, J. F.**: *A Case of Fracture of the Sternum.*

4. Bisson reports a series of 200 cases of intravenous injection of antitoxin in diphtheria, with 33 deaths. At first serum was given under a general anesthetic; later this was omitted. There was always a rise in temperature after injection, often a chill; occasionally urticaria and joint pains. The total results show a mortality of 13.94% in the cases where serum was given subcutaneously and 16.5% where the intravenous method was used; this is explained by the fact that the intravenous route was chosen for all the severest cases. The literature is reviewed.

Annals of Surgery.

September, 1906.

1. **Jacobson** and **Pease**: *The Serum Therapy of Tetanus.*
2. **Blake, J. A.**: *The Treatment of Tetanus by Magnesium Sulphate.*
3. **Murray, F. W.**: *Early Operation in Traumatic Intracranial Hemorrhage.*
4. **Da Costa, J. C.**: *Report of a Case of Tumor of the Carotid Body.*
5. **Fisher, J. M.**: *Shortening of the Round Ligaments by Subperitoneal Ventro-Aponeurotic Fixation.*
6. **Dorrance, G. M.**: *An Experimental Study of Suture of Arteries, with a Description of a New Suture.*
7. **Kerr, N.**: *Combined Superior Tibiofibular and Astragalofibular Osteoplasty as a Means to Prevent Shortening of the Leg after Extensive Osteomyelitis of the Tibia Occurring during Adolescence.*
8. **Noble, C. P.**: *The Relation of the Technique of Nurses and of Hospital Apparatus to the Healing of Wounds.*

Nos. 1, 2 and 3 will be reviewed in "Medical Progress."

4. Da Costa removed a tumor of the carotid body, about 5 cm. in diameter. The operation was extremely difficult, and necessitated tying the common carotid artery. Following the operation there was laryngeal anesthesia and partial loss of voice from injury to the

superior laryngeal nerve and hemiplegia. The hemiplegia was slowly recovered from.

In removing these growths the reported cases show that almost always the carotid must be ligated. Since 32% of the cases in which the common carotid is ligated show brain symptoms the operation is a formidable one. Another danger is nerve injury. One should not operate on these growths if they are but slowly progressing in size; but when they begin to grow rapidly they must be immediately removed in spite of the danger.

6. By his method of suture, which is fully illustrated, Dorrance draws the conclusion that thrombosis by this method is not present except as a result of infection. He concludes by stating that whatever suture is used, intima should be placed to intima, and that during this performance the suture must be kept out of the blood stream by the use of clamps.

7. In order to save time and prevent shortening of the leg following osteomyelitis, Kerr advises the following procedure: First, remove all the infected bone and suture the edges of the periosteum together, except at the ends, and drain sufficiently; at the same time prevent deformity as much as possible by the use of the splint. Second, after suppuration has ceased, destroy the upper tibiofibular joint and cause anchylosis at this point. Then divide the lower end of the fibula on a level with the upper surface of the lower epiphysis of the tibia, if this is not destroyed, or the astragalus if the epiphysis has been sacrificed to the disease, and place the end of the fibula on the new location.

Bulletin of the Johns Hopkins Hospital.

October, 1906.

1. Randolph, R. L.: *Bacteriological Examinations of the Conjunctival Sac in Typhoid Fever.*
2. Walsh, J.: *Tuberculosis Work in Europe.*
3. Macht, D. I.: *Moses Maimonides.*
4. Hirschfelder, A. D.: *Observations upon Paroxysmal Tachycardia.*
5. Boggs, T. R.: *A Simple Method for the Quantitative Determination of Proteids in Milk.*

1. Randolph examined the conjunctival sac for bacteria in 100 cases of typhoid and in 48 cases of pneumonia. The typhoid bacillus was not found in any case. The pneumococcus was found in but two of the pneumonia cases. In 120, or 81%, of the 148 cases, the micrococcus albus was present.

2. Walsh's article is descriptive of the institutions caring for tuberculous patients, especially in Germany, — sanatoria, private and public, tuberculosis dispensaries and camps, and hospitals for advanced cases. Germany is far in advance of our country in the number of sanatoria in proportion to population, and still more so in the financial support afforded to their maintenance. This wealth of financial resource results from the strength of the workingman's insurance companies, by which every workingman or woman is insured against disease, as well as death, the employer paying the insurance. This system deserves our serious consideration. We are also deficient in hospitals for advanced cases. Our tuberculosis dispensaries with equipment for supervising the daily life of patients who remain in their own homes, forming the most important element in the crusade against tuberculosis, are also far too few.

4. Hirschfelder describes a case of paroxysmal tachycardia, in which, as in published cases of other authors, the pulse rate during the paroxysm was almost exactly double the rate of the pulse between attacks. In similar cases Ribl and Hofman have made venous tracings which indicated that after the ventricular contractions had resumed their normal rate the auricles continued to beat at the same rate as in the paroxysm. This continued contraction of the auricle at a rate double that of the ventricle, Hirschfelder was unable to demonstrate in his case. A discussion of theories as to the pathological physiology of paroxysmal tachycardia follows. The theory that the condition in the attack is due to a release of a functional partial heart block, either between sinus venosus and auricle, or between auricle and ventricle, is mentioned. Excessive tone of the vagus has been suggested as a possible cause of such a functional heart block. But failure to produce a paroxysm by the use of atropin or of amylnitrite to paralyze the vagus, in Hirschfelder's case, argues against this theory. A trial of aconite, to stimulate the vagus, is suggested as a therapeutic measure during the attack.

5. Bogg describes a method of determining the percentage of proteid in milk similar to the familiar Esbach method for quantitating albumin in urines, differing only in the reagent used as a precipitant. This reagent for milk consists of a 10% solution of phosphotungstic acid in about 3% HCl. Standard Esbach tubes are used. The milk is diluted 1 to 10 if human, or 1 to 20 if cow's milk. After standing twenty-four hours the readings are obtained, directly in per cent if the dilution used is 1 to 10, or to be multiplied by 2 if the dilution is 1 to 20. In 300 comparisons of results of this process with those of the Kjeldahl method, there was a mean difference of but 0.2%.

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Correspondence.

AUTOTOXEMIA AND NEUROSES.

103 State Street, Chicago,
Oct. 9, 1906.

Mr. Editor: My attention recently was called to an article entitled "Some Remarks on the Relations of the Gastro-Intestinal Tract to Nervous and Mental Diseases," by Robert Coleman Kemp, M.D., published in the Boston Medical and Surgical Journal of Aug. 23.

I was greatly interested in Dr. Kemp's article. Autotoxemia is a very important factor in the neuroses, more important than is generally recognized. I am glad that Dr. Kemp emphasized the necessity of overcoming autointoxication and regulating the habits of life in epileptic patients.

Relief from the ordinary effects of imperfect elimination is often very great so far as its expression in consciousness is concerned. In early life the emotions due to forced repression of excretions are frequently acute in the highest degree, and the joy of relief is correspondingly great. In adult life, as a rule, these are pushed into the background of consciousness, partly by training, partly by the fact that involuntary muscular activity is less imperative in adult life, so that the psychic element in connection with ordinary excretions is almost negligible. In many cases, however, the balance of adult consciousness is so disturbed by irritations from autotoxemia that relief from these produces a buoyancy out of proportion to the amount of elimination secured. In the adult the majority of functions cease to find expression other than in subconscious conditions. Making up what is called consciousness are a number of clear conscious states, accompanied by others less clear and physiologic conditions which, though not entering into consciousness, are even more potent than the conscious states. These last would be the first affected by autotoxemia. The morbid irritations resulting therefrom obtrude on consciousness, producing anxiety and uncertainty. These morbid irritations of physiologic states produce the two great conditions ordinarily found as a result of auto-intoxication. The first is what the older clinicians called nervous adynamia and ascribed not only to the essential fevers, etc., but also to autotoxemia.

From these two states, the conscious and the psychologic, the first an irritable weakness, the other a deep-seated constitutional neurosis, result the various conditions of temporary or protracted disorder charged to autotoxemia. The two conditions are predisposing factors of distinct value. One type disturbs the balance of health so that it is easily upset and easily recovers. In the deeper type a secondary condition to autotoxemia has been engendered, which, like all conditions influenced in their action by causes secondary to a great primary origin, will not yield to treatment of this primary cause alone. This latter condition, like chronic nutritional disturbances set up by syphilis, by the exanthemata and by other diseases in which the nervous state or the nutritional disturbance remains long after the primary cause has disappeared, acts as a predisposing neurosis.

All these morbid states and prolonged auto-intoxication produce a protracted neuropathy with suspicional and anxious tendencies. This condition mimics all the chronic neuroses and is often taken for them, whence the frequent cures of conditions like tabes by quack systems and medical pretenders. To a certain extent the period of attack gives a complexion to the clinical picture. A very common type between twenty-five and forty-five is a disorder simulating locomotor ataxia and often accompanied by convulsive attacks. In such cases even physicians not unnaturally give an erroneous prognosis. Lightning-like pains of tabes are simulated by temporary darting pains, partly of psychic origin. As the existing autotoxic state aggravates any effect of eye-strain and even produces it in certain cases, examination of the eyes often reveals conditions mistaken even by ophthalmologists for the preliminary stages of optic atrophy. As the reflexes are often as exaggerated in this condition as they are in the earlier stages of locomotor ataxia, an error in diagnosis is always possible.

The variations in the mental condition of this class of cases require but little to pass over into the confusional types of insanity. This was the case with those which Schroeder van der Kolk many years ago demonstrated to be due to fecal accumulation in the colon. In some cases melancholia is produced. Exceptionally emotional exaltation may occur, producing extravagant actions, thereby creating a suspicion of paretic dementia.

In many cases charged to mental shock, auto-intoxication is the dominant cause, which is often due to the inhibitory effect that mental shock has produced on the liver and kidneys, causing the latter to secrete only the clear, pale urine of nervous agitation. The cases of transitory frenzy, with their wild, brief, unremembered violence, charged to mental shocks, are really due to autotoxemia in the manner described.

The most common symptoms of this form of nerve tire are the very ones which lay tradition and dogmatic empiricism attribute to womb ailment. They are in the usual order of their frequency: great weariness and more or less of nervousness and of wakefulness; inability to walk any distance, and a bearing-down feeling; then headache, napeache and backache. Next come scant, painful, delayed or suppressed menstruation, cold feet, an irritable bladder, general spinal and pelvic soreness, and pain in one or both ovaries. The woman, always tired, spends the day tired, goes to bed tired and wakes up tired, often, indeed, more so than when she fell asleep. She sighs a great deal, has low spirits, and often fancies she will lose her mind. Her arms and legs become numb so frequently that she fears paralysis. The skin becomes dry, harsh and scurfy. Pigmentary deposits appear under the eyes, around the nipples and on the chin and forehead. Blondes get mottled in complexion. Brunettes are disfigured by brown patches or by general bronzing. Sometimes the whole complexion changes to a darker hue, while a disfiguring growth of hair appears on the face. A physician, especially if the patient has backache, bearing-down feeling, an irritable bladder and pain in the ovaries, is apt to hunt diligently for a uterine lesion. If one be found, no matter how trifling, he will attach to it undue importance and treat it heroically as the erring organ. If no visible or tangible disease of the sexual organs be discoverable, he will lay the blame on the invisible endometrium or on the unseeable ovary, and continue the local treatment or advise a surgical operation. In this connection it should be remembered that menstruation to a certain extent is eliminative, and that interference with it causes retention of toxic elements.

Even where the bowels seemingly move freely in constipated individuals, elimination is very imperfect. The acid urine of these patients causes, as Spallaci long ago discovered, stupor, asthenia, tremor, tetanoid symptoms and hypothermia, followed by hyperthermia when inoculated in animals. Improvement in elimination removes from the urine the factors producing these conditions. The urine of amenorrheic and dysmenorrheic women, not obviously suffering from constipation and having seemingly free movements of the bowels, presents similar qualities. Mental states in women or nervous men are peculiarly apt to disturb primarily the genito-urinary apparatus, and secondarily the hepatic and renal.

The pure type of autotoxemia which underlies many of the so-called reflex states was recognized by the older clinicians as fecal anemia, and treated on eliminative and roborant principles. The milder conditions resultant on autotoxemia are generally of local expression, like irritable bladder, various neuroses, unilateral headache and neuralgic irritations about the gums and teeth, together with dermatoses like angioneurotic edema and urticaria, disordered rhinolaryngolic conditions, local fleeting pains, etc. The severe types may vary from fecal anemia to conditions simulating chlorosis, neurasthenia of the ordinary type and of types mimicking tabes, transitory frenzy, melancholia, acute confusional insanity, stupor, amnesia, emotionally exalted states, and sometimes epileptiform attacks resembling grave hysteria, but accompanied with partial or complete loss of consciousness.

One unpleasant and frequent mental state in otherwise logical autotoxemias is nosophobia, or worry over the possibility of disease. This differs from hypochondria in the fact that the subject does not think he has a particular disease, but fears he may have. The irregular action of his organs resulting from autotoxemia intrudes on his consciousness and causes a fear or uncertainty as to his actual condition. That paretic dementia and tabes are often due to the toxin of syphilis is now generally admitted. The clinical history of some cases would indicate that autotoxemia has here played its part, more especially as it has been demonstrated beyond cavil that temporary autotoxemic neuroses mimic these two great constitutional disorders. The fact is but too often forgotten that the law of periodicity of the nervous system fixes a tendency of certain symptoms to recur from a slighter exciting cause. Hence, frequently recurring auto-intoxication causes that breakdown of the vasomotor balance which constitutes the underlying basis of tabes and paretic dementia.

One phase of autotoxemia which has received less attention than it deserves is the pseudo-angina which so frequently occurs. Sometimes, albeit very rarely, death has occurred from this. This condition is due to the primarily increased inhibition of the heart, succeeded by increased power of the excitomotor ganglia of the heart, with resultant irregular action. From this often results the emotional exaltation, depression and suspicional states found in auto-intoxication of brain and heart. It is readily comprehensible how these irregularities tend to increase each other. Independently of the condition just described, cardiac irregularities occur in autotoxemia from arterial tension due to the character of the blood. Inevitable renal and hepatic disturbances occur, whence the temporary albuminuria and glycosuria.

The therapeutics of autotoxemia will depend on the type. In irritable weakness, while removal from surroundings is desirable for permanent recovery, much may be attained by regulation of diet, use of alkalis or alkaline mineral waters, regular moderate exercise and massage, as well as hydrotherapy. Here, as in all cases of auto-intoxication, the great need of the system is water, and it should be amply supplied, whether in the form of mineral waters or ordinary waters, or large quantities of milk. Purgatives require very careful adjustment; both aloetic and the cascara purgatives tend to produce congestion of the hemorrhoidal veins, with resultant irritation. Saline laxatives usually act very well indeed in young and middle-aged people. In old people salines must be used cautiously. Intestinal antiseptics are often indicated, the sulphocarbolates being perhaps the best of any.

In no small number of cases of irritable weakness one-sixth grain of calomel given every hour for six doses, followed by a morning saline, acts rapidly and very beneficially in securing elimination, which is what is needed, not simple purgation. The bile acids will be found of remarkable efficiency in the great majority of cases. In the deeper type, removal from home surroundings and conditions is imperatively indicated. In addition to dietetics, hydrotherapy, elimination and exercise, faradism and franklinization along the spine are often found necessary and valuable. The indication in this type for the use of water is no less imperative than in the first type. The patient, however, has an intense repugnance to water, as a rule, and to secure its use the physician will need much ingenuity.

Truly yours,

Geo. F. Butler, M.D.

RECORD OF MORTALITY

For the Week ending Saturday, Oct. 13, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,284	407	Quincy	8	1
Chicago	528	161	Waltham	6	2
Philadelphia	493	136	Gloucester	—	—
St. Louis	—	—	Pittsfield	—	—
Baltimore	220	67	Brookline	5	1
Cleveland	—	—	North Adams	1	0
Buffalo	—	—	Chicopee	9	6
Pittsburg	—	—	Northampton	8	3
Cincinnati	—	—	Medford	5	—
Milwaukee	—	—	Beverly	2	—
Washington	—	—	Hyde Park	2	1
Providence	61	24	Newburyport	—	—
Boston	178	42	Leominster	7	2
Worcester	41	8	Melrose	5	0
Fall River	36	19	Woburn	2	2
Cambridge	32	11	Marlborough	2	1
Lowell	31	12	Westfield	—	—
Lynn	28	9	Peabody	—	—
New Bedford	22	11	Revere	2	—
Springfield	27	5	Clinton	—	—
Lawrence	27	14	Attleboro	1	1
Somerville	29	9	Adams	2	–
Holyoke	13	5	Gardner	—	—
Brockton	18	8	Milford	5	0
Malden	13	5	Weymouth	1	0
Salem	16	3	Framingham	6	1
Chelsea	12	7	Watertown	2	1
Haverhill	11	2	Plymouth	—	—
Newton	9	—	Southbridge	4	1
Fitchburg	6	4	Wakefield	3	—
Taunton	7	2	Webster	—	—
Everett	7	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 10, 1906.

Gardner, C. H., passed assistant surgeon. Relieved from duty at Galveston, Tex., and directed to proceed to San Francisco, Cal., reporting to the Medical Officer in command for duty and assignment to quarters. Oct. 5, 1906.

Corput, G. M., passed assistant surgeon. Relieved from duty at New Orleans, La., and directed to proceed to Galveston, Tex., and assume command of the Service of that port. Oct. 5, 1906.

Ebert, H. G., assistant surgeon. Relieved from duty on the Revenue Cutter "Perry," and directed to assume command of the Service at Seattle, Wash. Oct. 4, 1906.

Ebert, H. G., assistant surgeon. Granted leave of absence for fifteen days. Oct. 6, 1906.

Salmon, T. W., assistant surgeon. Granted leave of absence for fourteen days from Oct. 21, 1906. Oct. 10, 1906.

Simpson, Friench, assistant surgeon. Directed to proceed to Baltimore, Md., reporting to medical officer in command for duty and assignment to quarters. Oct. 5, 1906.

Herring, R. A., assistant surgeon. Directed to report to the medical officer in command, New Orleans, La., for duty and assignment to quarters. Oct. 5, 1906.

Bailey, C. W., acting assistant surgeon. Granted leave of absence for ten days from Aug. 16, 1906, on account of sickness. Oct. 5, 1906.

Cleaves, F. H., acting assistant surgeon. Granted leave of absence for four days from Oct. 2, 1906, under paragraph 210 of the regulations.

Houghton, M. W., acting assistant surgeon. Granted leave of absence for fifteen days from Oct. 15, 1906. Oct. 8, 1906.

Hunter, W. R., acting assistant surgeon. Granted leave of absence for fourteen days from Oct. 10, 1906. Oct. 5, 1906.

Stanton, J. G., acting assistant surgeon. Granted leave of absence for thirty days from Oct. 9, 1906. Oct. 8, 1906.

BOARD CONVENED.

A board of medical officers was convened to meet at Galveston, Tex., Oct. 10, 1906, for the purpose of examining candidates for cadetships in the Revenue-Cutter Service. Detail for the board: Passed Assistant Surgeon C. H. Gardner, chairman; Acting Assistant Surgeon William Gammon, recorder.

APPOINTMENTS.

Dr. Friench Simpson, of Texas, commissioned (recess) as assistant surgeon, Public Health and Marine-Hospital Service. Oct. 1, 1906.

Dr. A. E. Austin, Professor of Chemistry in Tufts Medical College will deliver the course of lectures in clinical chemistry in the University of Virginia beginning Feb. 1, 1907, and continuing for the four succeeding months.

Dr. Robert A. Herring, of Mississippi, commissioned (recess) as assistant surgeon, Public Health and Marine-Hospital Service. Oct. 1, 1906.

Walter Bradford Cannon, George Higginson Professor of Physiology, from Sept. 1, 1906 (consented to by the Board of Overseers, Oct. 10, 1906), A.B. (Harv.) 1896, A.M. (*ibid.*) 1897, M.D. (*ibid.*) 1900; Instructor in Zoölogy, 1899–1900, Instructor in Physiology, 1900–02, Assistant Professor of Physiology, 1902–06, Harvard University.

William Townsend Porter, Professor of Comparative Physiology, from Sept. 1, 1906 (consented to by the Board of Overseers, Oct. 10, 1906), M.D. (St. Louis Med. Coll.) 1885; Assistant Professor of Physiology, 1887–88, Professor of Physiology, 1888–93, St. Louis Medical College; Assistant Professor of Physiology, 1893–98, Associate Professor of Physiology, 1898–1906, Harvard University.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING OCT. 20, 1906.

J. C. Pryor, surgeon. Detached from duty at the Marine Barracks, Washington, D. C., and ordered to additional duty at U. S. Naval Medical School Hospital, Washington, D. C.

J. G. Field, surgeon. Ordered to additional duty at Marline Barracks, Washington, D. C.

E. Z. Derr, medical director, commissioned a medical director in the United States Navy from Sept. 6, 1906.

E. Eagling, U. S. N., pharmacist, retired. Died at Yokohama, Japan, Sept. 22, 1906.

SOCIETY NOTICES.

Censors' Meeting, Suffolk District Medical Society.—A censors' meeting will be held Thursday, Nov. 8, at two o'clock, at the Boston Medical Library, for the examination of candidates for the Massachusetts Medical Society.

L. R. G. Crandon, M.D., *Secretary.*

Suffolk District Medical Society.— Stated meeting, Saturday evening, Oct. 27, at 8.15. "Certain Medical Aspects of Amateur Athletics. Athletics in Preparatory Schools," Dr. J. Bapst Blake. "The Professional's Theory of Training," Dr. E. H. Nichols. "The Medical Care of 'Varsity Oarsmen," Dr. Thomas J. Manahan. "Some Comments on the Training Table," Dr. Charles Harrington. "Casualties in Intercollegiate Football," Dr. Percy Brown.

L. R. G. Crandon, M.D.,
Secretary.

RECENT DEATHS.

Alphonso Bickford Brown, M.D., M.M.S.S., died in Newburyport, Oct. 17, 1906, aged forty-one years.

Dr. Henry A. Laurent, of New York, died on Oct. 12, at the age of forty-three years. He was a native f Germany and was graduated from the University of Heidelburg in 1891. He also took the degree of M.D. at the medical department of the University of the City of New York in 1896.

Dr. Guido Katzmayer, of New York, died on Oct. 13. He was born in Germany in 1832, and was educated at Heidelburg and Wartzburg. He was graduated in medicine from Bellevue Hospital Medical College in 1883.

Dr. Thomas E. Cone, of New York, died in Bellevue Hospital on Oct. 20, at the age of fifty-nine years. He was graduated from the medical department of the University of the City of New York in 1872, and afterwards served as interne at the Charity Hospital, Jersey City.

BOOKS AND PAMPHLETS RECEIVED.

First Aid on the Battlefield. By Col. Nicholas Senn, M.D. Reprint.

The Needs and Advantages of an International Congress of Military Surgeons. By Nicholas Senn, M.D., Ph.D., LL.D. Reprint.

Leaflet. Massachusetts Civic League. Medical Inspection in the Public Schools. Edited by Joseph Lee and Margaret Curtis.

Second Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. Andrew Balfour, M.D., B. Sc., F.R.C.P. Edin., D.P.H. Camb., Director. Khartoum. 1906.

Year Book of the Medical Association of the Greater City of New York. 1906.

Addresses.

THE GROWTH OF TRUTH: AS ILLUSTRATED IN THE DISCOVERY OF THE CIRCULATION OF THE BLOOD.*

BY WILLIAM OSLER, M.D., F.R.S.,
Regius Professor of Medicine in the University of Oxford

I. ONLY those of us, Mr. President and Fellows, who have had the good fortune to hold the distinguished position which by your kind grace, sir, I hold to-day, only those of us who have delivered the Harveian Oration can appreciate the extraordinary difficulties besetting a subject, every aspect of which has been considered, very often, too, by men who have brought to the task a combination of learning and literary skill at once the envy and the despair of their successors. But I take it, sir, that in this Ambervalia or commemorative festival for blessing the fruits of our great men, ordained definitely as such by him whose memory is chiefly in our minds to-day, our presence here in due order and array confers distinction upon an occasion of which the oration is but an incident. But honor worthy of such a theme should be associated with full knowledge of the conditions under which these great men lived and moved; and here comes in the real difficulty, because it is rarely possible to bring the fruits of independent critical investigation into their lives and works. Particularly hard is it for those of us who have had to live the life of the arena; our best efforts bear the stamp of the student, not of the scholar. In my own case, a deep reverence for the mighty minds of old, and a keen appreciation of the importance to our profession of a study of history, may be put in the scales against defects as to the appreciation of which I have still remaining sufficient self-detachment. The lesson of the day is the lesson of their lives. But because of the ever-increasing mental strain in this age of hurry, few of us have the leisure, fewer still, I fear, the inclination, to read it thoroughly. Only with a knowledge of the persistency with which they waged the battle for truth, and the greatness of their victory, does the memory of the illustrious dead become duly precious to us.

History is simply the biography of the mind of man; and our interest in history and its educational value to us is directly proportionate to the completeness of our study of the individuals through whom this mind has been manifested. To understand clearly our position in any science to-day, we must go back to its beginnings, and trace its gradual development, following certain laws, difficult to interpret and often obscured in the brilliancy of achievements — laws which everywhere illustrate this biography, this human endeavor, working through the long ages; and particularly is this the case with that history of the organized experience of the race which we call science.

In the first place, like a living organism, truth grows, and its gradual evolution may be traced from the tiny germ to the mature product. Never springing, Minerva-like, to full stature at once, truth may suffer all the hazards incident to generation and gestation. Much of history is a record of the mishaps of truths which have struggled to the birth, only to die or else to wither in premature decay. Or the germ may be dormant for centuries, awaiting the fullness of time.

Secondly, all scientific truth is conditioned by the state of knowledge at the time of its announcement. Thus, at the beginning of the seventeenth century, the science of optics and mechanical appliances had not made possible (so far as the human mind was concerned) the existence of blood capillaries and blood corpuscles. Jenner could not have added to his inquiry a discourse on immunity; Sir William Perkin and the chemists made Koch possible; Pasteur gave the conditions that produced Lister; Davy and others furnished the preliminaries necessary for anesthesia. Everywhere we find this invariable filiation, one event following the other in orderly sequence — "Mind begets mind," as Harvey says; "opinion is the source of opinion. Democritus with his atoms, and Eudoxus with his chief good, which he placed in pleasure, impregnated Epicurus; the four elements of Empedocles, Aristotle; the doctrine of the ancient Thebans, Pythagoras and Plato; geometry, Euclid" ("*De Generatione*").

And, thirdly, to scientific truth alone may the *homo mensura* principle be applied, since of all mental treasures of the race it alone compels general acquiescence. That this general acquiescence, this aspect of certainty, is not reached *per saltum*, but is of slow, often of difficult, growth — marked by failures and frailties, but crowned at last with an acceptance accorded to no other product of mental activity — is illustrated by every important discovery from Copernicus to Darwin.

The growth of Truth corresponds to the states of knowledge described by Plato in the *Theætetus*, — acquisition, latent possession, conscious possession. Scarcely a discovery can be named which does not present these phases in its evolution. Take, for example, one of the most recent: Long years of labor gave us a full knowledge of syphilis; centuries of acquisition added one fact to another, until we had a body of clinical and pathological knowledge of remarkable fullness. For the last quarter of a century we have had latent possession of the cause of the disease, as no one could doubt the legitimate inference from discoveries in other acute infections. The conscious possession has just been given to us. After scores of investigators had struggled in vain with the problem, came Schaudinn with an instinct for truth, with a capacity to pass beyond the routine of his day, and with a vision for the whole where others had seen but in part. It is one of the tragedies of science that this brilliant investigator, with capabilities for work so phenomenal, should have been cut off at the very threshold of his career. The cancer problem, still in the stage of latent possession, awaits the advent of a man of the same type. In a hundred other less important problems, acquisition has by slow stages become latent possession; and there needs but the final touch — the crystal in the saturated solution — to give us conscious possession of the truth. But when these stages are ended, there remains the final struggle for general acceptance. Locke's remark, that "Truth scarce ever yet carried it by vote anywhere at its first appearance," is borne out by the history of all discoveries of the first rank. The times, however, are changing; and it is interesting to compare the cordial welcome of the pallid spirochete with the chilly reception of the tubercle bacillus. Villemin had done his great work, Cohnheim and Salmonson had finally solved the problem of infectivity, when Koch published his memorable studies. Others before him had seen the bacillus, but the conscious possession of the truth only came with his marvellous technique. Think of the struggle to secure acceptance! The seniors among us who lived through that instructive period remember well that only those who were awake when the dawn appeared assented at once to the brilliant demonstration. We are better prepared to-day; and a great discovery like that of Schaudinn is immediately put to the test by experts in many lands, and a verdict is given in a few months. We may have become more plastic and receptive, but I doubt it; even our generation — that great generation of the last quarter of the nineteenth century — had a practical demonstration of the slowness of the acceptation of an obvious truth in the long fight for the aseptic treatment of wounds. There may be present some who listened, as I did in October, 1873, to an introductory lecture at one of the largest of the metropolitan schools, the burden of which was the finality of surgery. The distinguished author and teacher, dwelling on the remarkable achievements of the past, concluded that the art had all but reached its limit, little reckoning that within a mile from where he spoke, the truth for which he and thousands had been striving — now a conscious possession in the hands of Joseph Lister — would revolutionize it. With scores of surgeons here and there throughout the world this truth had been a latent possession. Wounds had healed *per primam* since Machaon's day; and there were men before Joseph Lister who had striven for cleanliness in surgical technique; but not until he appeared could a great truth become so manifest that it everywhere compelled acquiescence. Yet not without a battle,— a long and grievous battle, as many of us well knew who had to contend in hospitals with the opposition of men who could not — not who would not — see the truth.

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* The Harveian Oration delivered at the Royal College of Physicians, London, Oct. 18, 1906. From advance proofs of the *British Medical Journal*, through courtesy of author and editor.

Sooner or later — insensibly, unconsciously — the iron yoke of conformity is upon our necks; and in our minds as in our bodies, the force of habit becomes irresistible. From our teachers and associates, from our reading, from the social atmosphere about us, we catch the beliefs of the day, and they become ingrained — part of our nature. For most of us, this happens in the haphazard process we call education, and it goes on just as long as we retain any mental receptivity. It was never better expressed than in the famous lines that occurred to Henry Sidgwick in his sleep:

"We think so because all other people think so;
Or because — or because — after all, we do think so.
Or because we were told so, and think we must think so
Or because we once thought so, and think we still think so;
Or because, having thought so, we think we will think so."

In departing from any settled opinion or belief, the variation, the change, the break with custom may come gradually; and the way is usually prepared; but the final break is made, as a rule, by some one individual, the masterless man of Kipling's splendid allegory, who sees with his own eyes; and with an instinct or genius for truth, escapes from the routine in which his fellows live. But he often pays dearly for his boldness. Walter Bagehot tells us that the pain of a new idea is one of the greatest pains to human nature. "It is, as people say, so upsetting; it makes you think that, after all, your favorite notions may be wrong, your firmest beliefs ill-founded; it is certain that till now there was no place allotted in your mind to the new and startling inhabitant; and now that it has conquered an entrance, you do not at once see which of your old ideas it will not turn out, with which of them it can be reconciled, and with which it is at essential enmity." It is on this account that the man who expresses a new idea is very apt to be abused and ill-treated. All this is common among common men, but there is something much worse which has been illustrated over and over again in history. How eminent soever a man may become in science, he is very apt to carry with him errors which were in vogue when he was young — errors that darken his understanding, and make him incapable of accepting even the most obvious truths. It is a great consolation to know that even Harvey came within the range of this law — in the matter of the lymphatic system; it is the most human touch in his career.

By no single event in the history of science is the growth of truth, through the slow stages of acquisition, the briefer period of latent possession, and for us glorious period of conscious possession, better shown than in the discovery of the circulation of the blood. You will all agree with me that a fellow of this college must take his courage in both hands who would, in this place and before this audience, attempt to discuss any aspect of this problem. After nearly three centuries of orations the very pictures and books in this hall might be expected to cry out upon him. But I have so taken my courage, confident that in using it to illustrate certain aspects of the growth of truth I am but obeying the command of Plato, who insists that principles such as these cannot be too often or too strongly enforced. There is a younger generation, too, the members of which are never the worse for the repetition of a good story, stale though it may be in all its aspects to their elders; and then there is that larger audience to be considered to which the season is never inappropriate to speak a word.

II. The sixteenth century, drawing to a close, had been a period of acquisition unequalled in history. Brooding over the face of the waters of medievalism, the spirit of the Renaissance brought forth a science of the world and of man which practically created a new heaven and a new earth, and the truths announced by Copernicus and Galileo far transcended

> "the searching schoolmen's view
> And half had staggered that stout Stagyrite."

Among other things, it had given to medicine a new spirit, a new anatomy, and a new chemistry. In the latter part of the fifteenth century Hippocrates and Galen came to their own again. A wave of enthusiasm for the fathers in medicine swept over the profession; and for at least two generations the best energies of its best minds were devoted to the study of their writings. How numerous and important is that remarkable group of men, the medical humanists of the Renaissance, we may judge by a glance at Bayle's *Biographie Médicale*, in which the lives are arranged in chronological order. From Garbo of Bologna, surnamed the expositor, to Rabelais, more than one hundred and fifty biographies and bibliographies are given, and at least one-half of these men had either translated or edited works of the Greek physicians. Of our founder, one of the most distinguished of the group, and of his influence in reviving the study of Galen and so indirectly of his influence upon Harvey, Dr. Payne's story still lingers in our memories. Leonicenus, Linacre, Gaulthier, Monti, Koch, Camerarius, Caius, Fuchs, Serbi, Cornarus, and men of their stamp not only swept away Arabian impurities from the medicine of the day, but they revived Greek ideals and introduced scientific methods.

The great practical acquisition of the century was a new anatomy. Vesalius and his followers gave for the first time an accurate account of the structure of the human body, and while thus enlarging and correcting the work of Galen, contributed to weaken the almost divine authority with which he dominated the schools. Nearly another century passed before chemistry, in the hands of Boyle and others, reached its modern phase, but the work of Paracelsus, based on that of the "pious spagyrist," Basil Valentine, by showing its possibilities, had directed men's minds strongly to the new science. Of the three, the new spirit alone was essential, since it established the intellectual and moral freedom by which the fetters of dogma, authority and scholasticism were forever loosened from the minds of men.

Into this world, we may say, stepped a young Folkestone lad, when, on the last day of May, 1593, he matriculated at Cambridge. Harvey's education may be traced without difficulty, bebecause the influences which shaped his studies were those which had for a century prevailed in the profession of this country. We do not know the reason for selection of Caius College, which, so far as I can gather, had no special connection with the Canterbury school. Perhaps it was chosen because of the advice of the family physician, or of a friend, or of his rector; or else his father may have known Caius; or the foundation may already have become famous as a resort for those about to "enter on the physic line." Or, quite as likely, as we so often find in our experience, some trivial incident may have turned his thoughts towards medicine. When he came up in 1593, there were those of middle age who could tell racy stories of Caius, the co-founder of the college, against whose iron rule they had rebelled. "Charged not only with a show of a perverse stomach to the professors of the Gospel, but with atheism," the last days of Caius's noble life were embittered by strife and misunderstanding. Doubtless the generous souls among them had long since learned to realize the greatness of his character, and were content to leave "the heat of his faith to God's sole judgment, and the light of his good works to men's imitation," with which words, half a century later, the inimitable Fuller concludes a short sketch of his life. I like to think that, perhaps, one of these very rebels, noting the studious and inquisitive nature of Harvey, had put into the lad's hand the little tractate, "*De libris propriis*," from which to glean a knowledge of the life and works of their great benefactor.

The contemplation of such a career as that of Caius could not but inspire with enthusiasm any young man. No one in the profession in England had before that time reached a position which I may describe as European. An enthusiastic student and the friend of all the great scholars of the day; a learned commentator on the works of the Fathers; the first English student in clinical medicine; a successful teacher and practitioner; a keen naturalist; a liberal patron of learning and letters; a tender and sympathetic friend — Johannes Caius is one of the great figures in our history.

Nor need I dwell, before this audience, on his devotion to our interests, other than to say that the memory of no Fellow on our roll should be more precious to us. Four years hence, on October 6, will occur the quatercentenary of his birth. As well in love as in gratitude, we could celebrate it in no more appropriate manner, and in none that would touch his spirit more closely, than by the issue of a fine edition of his principal works (including the MS. annals of the college). For the preparation of this there are those among us well fitted, not less by veneration for his memory than by the possession of that critical scholarship which he valued so highly.

When Harvey set out on the grand tour, Italy was still the *mater gloriosa studiorum* to which one hundred years earlier, so tradition says, Linacre on leaving had erected an altar. The glamour of the ideals of the Renaissance had faded somewhat since the days when John Free, an Oxford man, had made the ancient learning his own; and had so far bettered the instruction of his masters that he was welcomed as a teacher in Padua, Ferrara and Florence. In a measure, too, the national glory had departed, dimmed amid the strife and warfare which had cost the old republics their independence. Many years earlier Fracastorius, one of our medical poets, had sung of her decadence:

> "To what estate, O wretched Italy,
> Has civil strife reduc'd and moulder'd Thee!
> Where now are all thy ancient glories hurl'd?
> Where is thy boasted Empire of the world?
> What nook in Thee from barbarous Rage is freed
> And has not seen thy captive children bleed?"[1]

And matters had not improved but had grown worse. In the sixteenth century Italian influence had sunk deeply into the social, professional and commercial life of England, more deeply, indeed, than we appreciate;[2] and it was not for a generation or two later that the candlesticks were removed from the Cisalpine towns to Montpelier, Paris and Leyden. In 1593 a well-to-do young Englishman who wished to study medicine thoroughly went to North Italy, and most naturally to Padua — "fair Padua, nursery of the arts" — whose close affiliations with us may be gathered from the fact that, of universities next to Oxford and Cambridge, she has given us more presidents than any other. In the years that had passed since Vesalius had retired in disgust, the fame of its anatomical school had been well maintained by Fallopius, Columbus and Fabricius, worthy successors of the great master. Of each may be said what Douglas says of the first named: "*In docendo maxime methodicus, in medendo felicissimus, in secando expertissimus.*" While the story of Harvey's student life can never be told as we could wish, we know enough to enable us to understand the influences which moulded his career. In Fabricius he found a man to make his life-model. To the enthusiastic teacher and investigator were added those other qualities so attractive to the youthful mind, generous sympathies and a keen sense of the wider responsibilities of his position, as shown in building, at his own expense, a new anatomical theatre for the university. Wide as was the range of his master's studies, embracing not alone anatomy but medicine and surgery, the contributions by which he is most distinguished are upon subjects in which Harvey himself subsequently made an undying reputation. The activity of his literary life did not begin until he had been teaching nearly forty years, and it is a fact of the highest significance that, corresponding to the very period of Harvey's stay in Padua, Fabricius must have been deep in the study of embryology and of the anatomy of the vascular system. His great work on generation was the model on which Harvey based his own, in some ways, more accurate studies — studies in which, as my colleague Professor Brooks of the Johns Hopkins University has pointed out, he has forestalled von Baer.

The work of Fabricius which really concerns us here is the "*de Venarum Ostiolis.*" Others before him had seen and described the valves of the veins,— Carolus, one of the great Stephani, Sylvius and Paul Sarpi. But an abler hand in this work has dealt with the subject, and has left us a monograph which for completeness and for accuracy and beauty of illustration has scarcely its equal in anatomical literature. Compare Plate VII, for example, with the illustrations of the same structures in the Bidloo or the Cowper "Anatomy," published nearly one hundred years later; and we can appreciate the advantages which Harvey must have enjoyed in working with such a master. Indeed, it is not too far-fetched to imagine him, scalpel in hand, making some of the very dissections from which these wonderful drawings were taken. But here comes in the mystery. How Fabricius, a man who did such work — how a teacher of such wide learning and such remarkakle powers of observation — could have been so blinded as to overlook the truth which was tumbling out, so to speak, at his feet, is to us incomprehensible. But his eyes were sealed, and to him, as to his greater predecessors in the chair, clear vision was denied. The dead hand of the great Pergamite lay heavy on all thought, and Descartes had not yet changed the beginning of philosophy from wonder to doubt. Not without a feeling of pity do we read of the hopeless struggle of these great men to escape from slavish submission to authority. But it is not for us in these light days to gauge the depth of the sacred veneration with which they regarded the Fathers. Their mental attitude is expressed in a well-known poem of Browning's:

> "Those divine men of old time
> Have reached, thou sayest well, each at one point
> The outside verge that rounds our faculty,
> And where they reached who can do more than reach?"

Willing to correct observations or to extend anatomy by careful dissection, it was too much to expect from them either a new interpretation of the old facts or a knowldge of the new method by which those facts could be correctly interpreted.

The ingenious explanation which Fabricius gave of the use of the valves of the veins — to serve as dams or checks to the flow of the blood, so that it would not irrigate too rapidly and overflow the peripheral vessels to the deprivation of the upper parts of the limbs — shows how the old physiology dominated the most distinguished teacher of the time in the most distinguished school of Europe. This may have been the very suggestion to his pupil of the more excellent way. Was it while listening to this ingenious explanation of his master that, in a moment of abstraction — dimly dreaming, perhaps, of an English home far away and long forsaken — that there came to Harvey a heaven-sent moment, a sudden inspiration, a passing doubt nursed for long in silence, which ultimately grew into the great truth of 1616?

The works of Vesalius, of Fallopius and of Fabricius effected a revolution in anatomy, but there was not at the close of the sixteenth century a new physiology. Though he had lost an anatomical throne, Galen ruled absolutely in all conceptions of the functions of the body, and in no department more serenely than in that relating to the heart, the blood and its movements. Upon his views I need not dwell further than to remind you that he regarded the liver as the source of the blood, of which there were two kinds, the one in the veins, the other in the arteries, both kinds in ceaseless ebb and flow, the only communication between these closed systems being through pores in the ventricular septum. He knew the lesser circulation, but thought it only for the nutrition of the lungs. The heart was a lamp which is furnished with oil by the blood and with air from the lungs. Practically until the middle of the seventeenth century Galen's physiology ruled the schools, and yet for years the profession had been in latent possession of a knowledge of the circulation. Indeed, a good case has been made out for Hippocrates, in whose works occur some remarkably suggestive sentences.[3] In the sixteenth century the lesser circulation was described with admirable fullness by Servetus and by Columbus, and both Sarpi and Cæsalpinus had Hippocratic glimmerings of the greater circulation. These men, with others, doubtless, were in latent possession of the truth. But every one of them saw darkly through Galenical glasses, and theirs was the hard but the common lot never to reach such conscious possession as everywhere to make men acquiesce. One must have the disinterestedness of the dead to deal with a problem about which controversy has raged, and in which national issues have been allowed to blur the brightness of an image which would be clear as day to those with eyes to see. Nor would I refer to a matter long since settled by those best competent to judge, had not the well known work of Luciani, the distinguished professor of physiology at Rome, appeared recently in German dress, edited by Professor Verworn, and spread broadcast views to which, with a chauvinism unworthy of their history, our Italian brethren still adhere. It has been well said "that he alone discovers who proves," and in the matter of the circulation of the blood, this was reserved for the pupil of Fabricius. Skipping many arduous years we next meet him as Lumleian lecturer to the college.

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[1] Syphilis. Englished by N. Tate, 1686.
[2] Einstein: Italian Renaissance in England. Macmillan, 1902.

III. The really notable years in the annals of medicine are not very numerous. We have a calendar filled with glorious names, but among the saints of science, if we know an era it is as much as can be expected — perhaps because such men are less identified with achievements than representative of the times in which they lived. With many of our greatest names we cannot associate any fixed dates. The Grecians who made Hippocrates possible live in memory with some theory, or a small point in anatomy, or in regard to the place of their birth; while the "*floruit*" cannot always be fixed with accuracy. Hippocrates himself, Erasistratus, Galen and Araetius have no days in our calendar. We keep no festival in their honor as the churches do those of St. Jerome and St. Chrysostom. It is not until after the Renaissance that certain years (*anni mirables*) stand out in bold relief as connected with memorable discoveries, or with the publication of revolutionary works. Nevertheless, only a few in each century; even the sixteenth, so rich in discoveries, has not more than five or six such years, and not one of them is connected with work done in this country. As to the seventeenth century, it is hard to name four made memorable by the announcement of great discoveries or the publication of famous works; in the eighteenth century not three, while in the century just completed, though it is replete with extraordinary discoveries, one is hard pressed to name half a dozen years which flash into memory as made ever memorable by great achievements. Of the three most important, anesthesia, sanitation, and antiseptic surgery, only of the first can the date be fixed, 1846, and that for its practical application. For the other two discoveries, who will settle upon the year in which the greatest advance was made, or one which could be selected for an anniversary in our calendar?

There is one *dies mirabilis* in the history of the college — in the history, indeed, of the medical profession of this country, and the circumstances which make it memorable are well-known to us. At ten o'clock on a bright spring morning, April 17, 1616, an unusually large company was attracted to the New Anatomical Theatre of the Physicians' College, Amen Street. The second Lumleian Lecture of the annual course, given that year by a new man, had drawn a larger gathering than usual, due in part to the brilliancy of the demonstration on the previous day, but also it may be because rumors had spread abroad about strange views to be propounded by the lecturer. I do not know if at the college the same stringent rules as to compulsory attendance prevailed as at the Barber Surgeons' Hall. Doubtless not; but the president and censors and Fellows would be there in due array, and with the help of the picture of "The Anatomy Lecture by Bannister," which is in the Hunterian collection, Glasgow, and a photograph of which Dr. Payne has recently put in our library, we can bring to mind this memorable occasion. We see the "Anatomy," one of the six annually handed over to the college, on the table, the prosector standing by the skeleton near at hand, and very probably on the wall the very *Tabulæ* of dissection of the arteries, veins and nerves that hang above us to-day. But the center of attention is the lecturer — a small, dark man, wand in hand, with black, piercing eyes, a quick, vivacious manner, and with an ease and grace in demonstrating, which bespeaks the mastery of a subject studied for twenty years with a devotion that we can describe as Hunterian. A Fellow of nine years' standing, there was still the salt of youth in William Harvey when, not, as we may suppose, without some trepidation, he faced his auditors on this second day,— a not uncritical audience, including many men well versed in the knowledge of the time and many who had heard all the best lecturers of Europe.

The president, Henry Atkins, after whose name in our register stands the mysterious word "Corb," had already had his full share of official lectures, less burdensome three hundred years ago than now. Let us hope the lecture of the previous day had whetted his somewhat jaded appetite. The censors of the year formed an interesting

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Willis's Harvey, pp. 21-22

group: John Argent, a Cambridge man, a "great prop of the college," and often president, of whom but little seems known; Richard Palmer, also of Cambridge, and remembered now only for his connection with Prince Henry's typhoid fever, as Dr. Norman Moore has told us; Mathew Gwinne of Oxford, first Professor of Physic at Gresham College and a playwright of some note in his day; and Theodore Goulston of Merton College, one of our great benefactors, and for two hundred and sixty-seven years past and gone purveyor-in-chief of reputation to the younger Fellows of the college. Mayerne would be there, not yet a Fellow, but happy in his escape from the Paris Faculty; still dusty with conflict, he would scent the battle afar in the revolutionary statements which he heard. Meverell, fresh from incorporation at Cambridge, also not yet a Fellow; Moundeford, often president, whose little book, "*Vir Bonus*," sets forth his life. Paddy, a noteworthy benefactor, a keen student, still gratefully remembered at Oxford, would have strolled in with his old friend Gwinne; Baldwin Hamey the elder, also a benefactor, would be there, and perhaps he had brought his more interesting son, then preparing to enter Leyden, whose memory should be ever green among us. Let us hope Thomas Winston, probably an old-fellow-student at Padua, and later appointed Professor of Physic at Gresham College, was absent, as we can then be more charitable towards the sins of omission in his work on "Anatomy," published after his death, which so far as I can read, contrary to the statement of Munk (roll of the college) contains no word of the new doctrine. As an old Paduan, and fresh from its anatomical school, the younger Craige would not be absent. Flud, the Rosecrucian, of course was present; attracted, perhaps by rumors of anti-Galenical doctrines which had served to keep him out of the college; nor would be be likely to be absent at the festival of one whom he calls his "physicall and theosophicall patron." And certainly on such an occasion that able Aberdonian, Alexander Reid, would be there, whose *Σωηατογραφία* had just appeared,[4] with an extraordinary, full account of the vascular system. Reid was a good anatomist, one of our most distinguished Medico-Chirurgical Fellows, and a liberal benefactor. If, as has been stated, he was not a convert on account of his age, it was on account of his youth, for the Harveian doctrine, if in meager form, is to be found in the later editions (5th) of his "Manual." But we would miss Lodge, the poet, "cried up to the last for physic," as he had recently started for the Continent. And we may be sure that Harvey's old fellow-students at Padua — Fortescue, Fox, Willoughby, Mounsell, and Darcy — would honor their friend and colleague with their presence; and Edward Lister, also a fellow-Paduan, the first of his name in a family which has given three other members to our profession, two distinguished and one immortal. It was not a large gathering, as the Fellows, members, licentiates and candidates numbered only about forty; but as the lecture was a great event in the community, there would be present many interested and intelligent laymen, of the type of Digby, and Ashmole, and Pepys, — the "curious," as they were called, — for whom throughout the seventeenth century — the anatomy lecture equalled in attraction the play. Delivered in Latin, and interspersed here and there with English words and illustrations, there were probably more who saw than who comprehended, as Sir Thomas Browne indicated to his son Edward when he lectured at Chirurgeons' Hall.

It is a fortunate, and perhaps an almost unique, circumstance in bibliography that the manuscript of this course of lectures should have been preserved, and that we should be able to follow, step by step, the demonstration — a long and formidable procedure, as the whole anatomy of the thoracic organs was discussed. I dare say there was a prolonged break between the morning and the afternoon lecture "for a fine dinner," as Pepys described, when, on Feb. 27, 1663, he went with Harvey's pupil, Scarborough, to Chirurgeons' Hall and was used with "extraordinary great respect." Towards the close, after discussing in novel and modern terms the structure and action of the heart, Harvey summed up in a few sentences the conclusion of the matter. They stand as Fellows in the "*Prelectiones*" (published by the college in 1886):

> "W. H. constat per fabricam cordis sanguinem
> per pulmones in Aortam perpetuo
> transferri, as by two clacks of a
> water bellows to rayse water
> constat per ligaturam transitum sanguinis
> ab arteriis ad venas
> unde perpetuum sanguinis motum
> in circulo fieri pulsu cordis."

Probably few in the lecture hall appreciated the full meaning of these words, which to some must have seemed a blot on the whole performance; while others, perhaps, all with the feelings of the fishes after St. Anthony's well-known sermon,

> "Much delighted were they,
> But preferred the old way,"

returned to their homes wondering what he would say on the morrow when the "divine banquet of the brain" was to be spread before them.

One thing was certain — the lecture gave evidence of a skilled anatomist of remarkably wide experience and well versed in literature from Aristotle to Fabricius. While Harvey could agree with John Hunter, who states in a manuscript introductory lecture in the college library — "I deliver nothing I have not seen and observed myself," — he could not add with him, "I am not a reader of books." Nearly one hundred references to some twenty authors occur in the manuscript of the thorax, or, as he calls it, the "parlour" lecture.

It is a great pity that we have no contemporary account of the impression on such men as Mayerne or Reid of the new doctrines, for which we have the author's statement that they were taught annually and elaborated. So far as I know there is no reference to show that the lectures had any immediate influence in the profession, or indeed that the subject matter ever got beyond the circle of the college. We are not without a first-hand account by the author, of his reception: "These views as usual pleased some more, others less; some chid and calumniated me, and laid it to me as a crime that I had dared to depart from the precepts and opinions of all anatomists; others desired further explanation of the novelties."

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[4] Copy in Bodleian Library.

It is difficult for us to realize the mental attitude of the men who listened year by year as the turn of the "Parlour Lecture" came. Their opinions, no less firmly held than is our positive knowledge, did not get much beyond: "The great dictator Hippocrates puts us in mind of it, Galen has a thousand times inculcated the same, the prince of the Arabian tribe, Avicen, has set his seal unto it." This expresses their mental state, and such a heresy as a general circulation could scarcely be appreciated; and in a man of such good parts as Harvey would in pity be condoned, just as we overlook the mild intellectual vagaries of our friends.

Bootless to ask, impossible to answer, is the question why Harvey delayed for twelve years the publication of his views. He seems to have belonged to that interesting type of man, not uncommon in every age, who knows too much to write. It is not a little remarkable that this reticence of learning has been a strong mental feature in some of the greatest of discoverers. Perhaps it was the motive of Copernicus, who so dreaded the prejudices of mankind that for thirty years he is said to have detained in his closet the "Treatise of Revolutions." From what Harvey says, very much the same reasons restrained the publication of his work. To the lesser circulation, with the authority of Galen and Columbus to support it, men "will give their adhesion," but the general circulation "is of so novel and unheard-of character that I not only fear injury to myself from the envy of a few, but I tremble lest I have mankind at large for my enemies, so much doth wont and custom, that has become as another nature, and doctrine once sown and that hath struck deep root and rested from antiquity, influence all men." He felt, as he says to Riolan, that it was in some sort criminal to call in question doctrines that had descended through a long succession of ages and carry the authority of the ancients; but he appealed unto Nature that bowed to no antiquity and was of still higher authority than the ancients. Men have been for years in conscious possession of some of the greatest of truths before venturing to publish them. Napier spent twenty years developing the theory of logarithms, and Bacon kept the "*Novum Organum*" by him for twelve years, and year by year touched it up — indeed, Rowley states that he saw twelve copies. Two other famous discoveries by Englishmen have the same curious history — the two which can alone be said to be greater than the demonstration of the circulation of the blood. Zachariah Wood speaks of Harvey as the surmiser of the little world, to distinguish him from another Englishman who first went about the greater world. But a greater than both, Sir Isaac Newton, had grasped the secret of a cosmic circulation, and brooded in silence over the motion of the spheres for more than twenty years before publishing the "*Principia.*" Between the writing of the rough sketch in 1842 and the appearance of the "Origin of Species" seventeen years elapsed; and from the date of the journal notes, 1836, in which we have the first intimation of Darwin's theory, more than twenty years. In Harvey's case this intellectual reticence, this hesitation "to quit the peaceful haven," as he says, has cost us dear. Only a happy accident gave us the "*De Generatione*," and the college can never be too grateful to Sir George Ent for that Christmas visit, 1650, so graphically described, and to which we owe one of the masterpieces of English medicine. How many seventeenth-century treatises we could have spared to have had the "Practice of Medicine" conformable to his "Thesis of the Circulation of the Blood"! How instructive his prospective "Medical Observations" would have been we can gather from the remarkable series of cases scattered through the manuscript notes and his published writings. His "treatise apart" on "Eventilation or Respiration"; the "Medical Anatomy" or "Anatomy in Its Application to Medicine," as he says, "I also intend putting to press"; the work "from observations in my possession" on "Organs of Motion in Animals," — all of these, with the work on "Generation in Insects" and others mentioned by Dr. Merrett,[5] the then library keeper, 1667, were probably dispersed when those sons of Belial ransacked his chambers at Whitehall.

"Still the die is cast, and my trust is in the love of truth and the candor that inheres in cultivated minds." With these words he consoles himself, knowing from experience that the publication of even a portion of the work, as in one place he calls the little book, would raise a tempest. Zachariah Wood in the preface to the English edition, 1673, expresses what many of his contemporaries must have felt: "Truly a bold man indeed, O disturber of the quiet of physicians! O seditious citizen of the Physical Commonwealth! who first of all durst oppose an opinion conformed for so many ages by the consent of all." De Bach of Amsterdam describes the dilemma in which teachers found themselves: "This new thing I did examine, which the first entrance did seem very easily to be refuted, but being weighed in a just balance, and having added to reason my own ey-sight it was found inexpugnable, nay (the very prick of truth enforcing) to be embraced with both arms. What should I doe? Must Hippocrates be left, Galen slighted? No, if we follow the truth senced with reason and our sense, we are still Hippocrates his, we are still Galens" (English edition, 1653).

The history for the next thirty years illustrates the truth of Locke's dictum and the struggle for acceptance. Not the least interesting part of the story, it should be told at greater length and with more detail than it has yet received — more than I am able to give it. That the repeated demonstrations, aided by the strong personal influence of the man, brought the college, as a body, to the new views is witnessed rather by the esteem and affection the Fellows bore to him than by any direct evidence. The appearance of the book in 1628 made no great stir; it was not a literary sensation — a not uncommon fate of epoch-making works, the authors of which are too far ahead of their contemporaries to be appreciated. The same event happened to Newton's "*Principia*"; as Sir William Petty remarks, "I have not met with one man that put an extraordinary value on the book."

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[5] Munk: Roll of the College, vol. I, p. 132.

Among Englishmen, Primrose alone, brought up among the strictest sect of the Galenists, and at the time not a Fellow, wrote a criticism from the old standpoint (1632), and remained unconvinced twelve years later, as his controversy with Regius shows. And only one special treatise in favor of the circulation was written in England — that of Sir George Ent, a pupil and friend of Harvey, who wrote (1641) specially against Parisanus, a Venetian, a foeman quite unworthy of his quill. In the universities the new doctrine rapidly gained acceptance, in Cambridge through the influence of Glisson, while in part to Harvey's work and influence may be attributed that only too brief but golden renaissance of science at Oxford. A little incident mentioned in the autobiographical notes of the celebrated Wallis shows how the subject was taken up quite early in the universities: "And I took into it the speculative part of physick and anatomy as parts of natural philosophy, and, as Dr. Glisson has since told me, I was the first of his sons who (in a public disputation) maintained the circulation of the blood, which was then a new doctrine, though I had no design of practising physick." This was in the early "thirties." But the older views were very hard to displace, and as late as 1651 we find such intelligent members of the "invisible college" as Boyle and Petty carrying out experiments together in Ireland to satisfy themselves as to the truth of the circulation of the blood. It took much longer for the new views to reach the textbooks of the day.

From no work of the period does one get a better idea of the current anatomical and physiological teaching in London than from Crooke's "Body of Man" (1615 and 1631). Collected out of Vesalius, Plantinus, Platerius, Laurentius, Valveratus, Bauchinus, and others, it is an epitome of their opinions, with the comments of the professor who read the anatomy lecture to the company of the barber-surgeons. In the preface to the first edition he speaks of the contentment and profit he had received from Dr. Davies' Lumleian Lectures at the College of Physicians. There is no indication in the second edition that he had benefited by the instruction of Dr. Davies' successor. Galen is followed implicitly, with here and there minor deviations. The views of Columbus on the lesser circulation are mentioned, only to be dismissed as superfluous and erroneous. The Gresham professor of the day, Dr. Winston, makes no mention of the new doctrine in his "Anatomy Lectures," which were published after his death (1651), and are of special interest as showing that at so late a date a work could be issued with the Galenical physiology unchanged. In Alexander Reid's "Manual," the popular textbook of the day, the Harveian views are given in part in the fifth edition, in which, as he says in the preface, "the book of the breast" is altogether new — an item of no little interest, since he was a man advanced in years, and, as he says, "the hourglass hasteneth, and but a few sands remain unrun." Highmore, the distinguished Dorsetshire anatomist, and a pupil of Harvey, in his well-known "Anatomy," published in 1651, gives the ablest exposition of his master's views that had appeared in any systematic work of the period, and he urges his readers to study the "*de Motu Cordis*" as *fontum ipsum* from which to get clearer knowledge. He quotes an appropriate motto for the period — *laudamus veteres: sed nostris utimur annis.* But even so late as 1671 the old views were maintained in the English edition of Riolan. And yet the knowledge of Harvey's views must have spread broadcast, not only in the profession, but in that large outside circle of distinguished men who felt the new spirit of science working in their veins. From converse or from the Lumleian lectures, which, no doubt, he often attended, Kenelm Digby must have had the information about Harvey's views on generation, as at the date of the issue of his "Two Treatises" (1644), they had not been published anywhere. While he knew well the motion of the blood as expounded by Harvey, and having, in making his great antidote, studied the action of the viper's heart, Digby, like Descartes, could not emancipate himself from the old views, as shown in the following passage: "But if you desire to follow the blood all along every steppe, in its progresse from the hart round about the body, till it returne back againe to its center, Doctor Harvey, who most acutely teacheth this doctrine, must be your guide. He will show you how it issueth from the hart by the arteries; from whence it goeth on warming the flesh, untill it arrive to some of the extremities of the body: and by then it is grown so coole (by long absence from the fountaine of its heate; and by evaporating its owne stocke of spirits, without any new supply) that it hath need of being warmed anew; it findeth itself returned back againe to the hart, and is there heated againe, which returne is made by the veines, as its going forwardes is performed only by the arteries."

Sir William Temple well expresses the attitude of mind of the intellectual Philistine of the time, who looked for immediate results. Speaking of the work of Harvey and of Copernicus he says: "Whether either of these be modern discoveries or derived from old foundations is disputed; nay, it is so too, whether they are true or no; for though reason may seem to favor them more than the contrary opinions, yet sense can hardly allow them, and to satisfy mankind both these must concur. But if they are true, yet these two great discoveries have made no change in the conclusions of astronomy nor in the practice of physic, and so have been but little use to the world, though, perhaps, of much honor to the authors."[6] It is pleasant to notice that our old friend, Sir Thomas Browne, with his love of paradox, declared that he preferred the circulation of the blood to the discovery of America.

Of the reception of Harvey's views in Holland and Germany there is nothing to add to the admirable account given by Willis. The early and strenuous advocacy of Descartes must have influenced the Dutch physicians; but in this, as in so many other things, the infection of his early years proved too powerful, and he could not get rid of the "ancient spirits." Of the discovery of the circulation he says[7] it is "*la plus belle et la plus utile que l'on put faire en médecine.*" "*Toute a faite contraire au sein touchant la mouvement du coeur,*" which he held to be due to an ebullition of the spirits — a sort of ferment (*espece de levain*) existing in it. Much more actively discussed in Holland than elsewhere, the writings of Drake, Walaeus, Regius, Plempius, Sylvius, de Bach, Conringius, T. Bartholini (the Dane), and others threshed out the whole question very thoroughly, and their views, with those of Hoffman, Slegel and others, are referred to by Willis and given in greater detail by Riolan.[8]

In the oft-quoted statement that Harvey, "conquering envy, hath established a new doctrine in his lifetime," Hobbes was right so far as England and Holland are concerned. But it was far otherwise in France, where it met with a bitter and protracted hostility. The Medical School of the University of Paris, at the time one of the best-organized and most important in Europe, declined to accept the circulation of the blood during his lifetime and for some years after his death. The history of the period is pictured for us in vivid colors in that *journal intime* which Gui Patin kept up with his friends, Spohn and Falkconet of Lyons and the Belins (*père et fils*). With all his faults, particularly his scandalous lack of charity, one cannot but feel the keenest sympathy with this dear old man. Devoted to his saints, Hippocrates and Galen, Fernel and Duret, and to his teachers, Piêtre and Riolan, to him the circulation of the blood was never more than an ingenious paradox. To such a lover of books and of good literature everything can be forgiven, and in his letters we follow with deepest interest his vigorous campaign against his dear enemies, the *Cuisiniers Arabesques,* who had enslaved people and physicians alike, the hemophobies, the chemists, the astrologers and the *stibiate*, or as he calls it, the *stygiate* group. To him the Koran was less dangerous than the works of Paracelsus, the appearance of the new Geneva edition of which he deeply deplores. Reverence for Galen and friendship with Riolan, rather than any deep interest in the question, inspired his opposition. To him the new doctrine was ridiculous, and it was he who called the partisans of it *circulateurs* in allusion to the Latin word, circulator, meaning charlatan. In 1652 he writes to Spohn that the question is still open whether the blood passes through the septum of the heart or through the lungs. In 1659 he promises to send him a work of Vinean against the circulation.[9] More extraordinary still is the fact that as late as 1670, twelve years after Harvey's death, the thesis of one Cordelle, a bachelor of medicine, publicly discussed the circulation of the blood, and Gui Patin, who presided, decided in the negative. The fiction of an ingenious narrator, *le doux songe* of Harvey, are the terms in which he speaks of it. The whole passage is worth quoting as possibly the last public denouncement of what seemed a rank heresy to the old Galenists: "*Supposer que le lang se meut toujours circulairement, que de la veine cava ascendantr il tombe dans l'oreillete droit du coeur, que de là il aille traverser tout la substance du poumon pour retomber de là dans l'oreillete gauche en passant par la veine pulmonaire, et qu'enfin de la il soit projete dans l'aorte et toutes les artères qui le feront passer dans les veines, et dans le coeur, lui faisant par ce moyen suivre un circuit, voilà le doux songe de Harvey, la fiction d'un narrateur ingenieux, mais nullement prouvee par l'evidence. La circulation du sang, son transport circulaire par les vaisseaux, c'est l'enfantement d'un esprit oisef, un vrai nuage qu'embrassent les Ixions pour procréer les Centaurs et les monstres.*"[10]

As I said, we can forgive a great deal to the man who has left us such a picture of seventeenth-century life, drawn, all unconsciously, with a master hand; and through the mists of prejudice and hate we can recognize the good sense which had the courage to protest against the *forfanterie Arabesque et bezoardesque* in much of the therapeutics of the day.

Though a professor in the Paris Faculty and a brilliant lecturer, Patin at that time did not occupy such a distinguished position, nor was his opposition of such importance as that of Riolan — "John Riolan, the son, the most experienced physician in the Universitie of Paris, the prince of dissection of bodies, and the king's professor, and dean of anatomie and of the knowledge of simples, chief physician to the queen-mother of Louis XIII" — as he is quaintly, but very truly, described by Harvey.[11] Brought up by his father to regard Hippocrates and Galen as the sources of all wisdom, the intensity of his zeal increased with his years until at last "to see the physic of Galen kept in good repair" became the passion of his life. The deep pity of it all is that such mental blindness should have stricken a really great man, for he was a brilliant anatomist and teacher, the author of the best anatomical textbook of its day, a man of affairs, profoundly versed in literature, a successful practitioner, and for years the head of the profession in France.

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[6] Works, 1844, vol. iii, p. 293.

[7] Cousin's edition, vol. ix, p. 159.

[8] Opuscula Anatomica, London, 1649.

[9] Lettres, vol. i, p. 324, edition 1691.

[10] Gui Patin, par Félix Larrieu.

[11] Title-page of English edition of the Letter, 16

The opposition of such a man was serious, and naturally had a profound influence. Not content with the comparatively brief statement in the "*Encheiridion*," 1648, Riolan published in England the following year his "*Opuscula Anatomica nova*," one very large section of which is taken up with the problem of circulation. It was this probably as much as a present of the "*Encheiridion*" that induced Harvey to break his long silence and to reply. After a report of a discussion upon a thesis in 1645 and a statement of objections, a most interesting discussion follows of the literature, in which the opinions of various writers are examined, particularly those of Cartesius, Conringius, Wallaeus, and Plempius.

It is quite possible that the second Disquisition of Harvey to Riolan, published with the first in duodecimo form at Cambridge in 1649, was brought out by Riolan's latter publication, though it is not directly referred to. Little did Harvey appreciate that his old friend was both blind and deaf — incapable of seeing obvious facts. It was not a question of being conversant with anatomy or of having had experience, on both of which points Harvey dwells at length. Riolan knew his anatomy as well as, or better than, any man of his generation. It was not that he would not — but that he could not — see the truth which was staring him in the face. As Reynaud[12] mentions, an occasional thesis (Fagon, 1663; Mattol, 1665) supporting the circulation did slip through the faculty; but the official recognition in France did not come until 1673, when Louis XIV founded a special Chair of Anatomy at the Jardin des Plantes for the propagation of the new discoveries.

The satire of Molière and the "*Arret Burlesque*" of Boileau completed the discomfiture of the "*anticirculateurs*," but it had taken nearly half a century to overcome the opposition of those who saw in the new doctrines the complete destruction of the ancient system of medicine.

IV. Even when full grown in the conscious stage Truth may remain sterile without influence or progress or any aspects of human activity. One of the most remarkable of phenomena in mental biography is the failure of the Greeks to succeed after giving the world such a glorious start. They had every essential for permanent success: scientific imagination, keen powers of observation; and if in the days of Hippocrates the mathematical method of interrogating nature prevailed rather than the experimental, Galen carried the latter to a degree of perfection never again reached until the time of Harvey. Only when placed in its true position in relation to Greek religion and philosophy, as has been done so skillfully by Gomperz,* do we realize the immensity of the debt we owe to those, "our young light-hearted masters." And Gomperz makes clear the nature of the debt of Greek thought to the practical sense of the physicians. But alas! upon the fires they kindled were poured the dust and ashes of contending philosophies, and neither the men of the Alexandrian school nor the brilliant labors of the most encyclopedic mind that has ever been given to medicine sufficed to replenish them. Fortunately, here and there amid the embers of the Middle Ages glowed the coals from which we have lighted the fires of modern progress. The special distinction which divides modern from ancient science is its fruitful application to human needs — not that this was unknown to the Greeks but the practical recognition of the laws of life and matter has in the past century remade the world. In making knowledge effective we have succeeded where our masters failed. But this last and final stage, always of slow and painful consummation, is evolved directly from truths which cannot be translated into terms intelligible to ordinary minds. Newton's great work influenced neither the morals nor the manners of his age, nor was there any immediate tangible benefit that could be explained to the edification or appreciation of the "ordinary man" of his day; yet it set forward at a bound the human mind, as did such truths as were proclaimed by Copernicus, by Kepler, by Darwin and others. In a less conspicuous manner Harvey's triumph was on the same high plane. There was nothing in it which could be converted immediately into practical benefit, nothing that even the Sydenhams of his day could take hold of and use. Not so much really in the demonstration of the fact of the circulation as in the demonstration of the method — the *Inventum mirabile* sought for by Descartes, the "*Novum Organum*" of Bacon — lies the true merit of Harvey's work. While Bacon was thinking, Harvey was acting; and before Descartes had left his happy school at le Flêche Harvey was using *le nouvelle méthode;* and it is in this way that the *de Motu Cordis* marks the break of the modern spirit with the old traditions. No longer were men to rest content with careful observation and with accurate description; no longer were men to be content with finely-spun theories and dreams, which "serve as a common subterfuge of ignorance"; but here for the first time a great physiological problem was approached from the experimental side by a man with a modern scientific mind, who could weigh evidence and not go beyond it, and who had the sense to let the conclusions emerge naturally but firmly from the observations. To the age of the hearer, in which men had heard and heard only, had succeeded the age of the eye, in which men had seen and had been content only to see. But at last came the age of the hand — the thinking, devising, planning hand; the hand as an instrument of the mind, now introduced into the world in a modest little monograph of seventy-two pages, from which we may date the beginning of experimental medicine.

No great discovery in science is ever without a corresponding influence on medical thought, not always evident at first, and apt to be characterized by the usual vagaries associated with human effort. Very marked in each generation has been the change wrought in the conceptions of disease and in its treatment by epoch-making discoveries as to the functions of the body. We ourselves are deeply involved to-day in toxins and antitoxins, in opsonins, tulases, and extracts as a direct result of the researches in bacteriology and in internal secretion. There were sanguine souls in Harvey's day, who lamented with Floyer that the discovery had not brought great and general innovations into the whole practice of physic. But had the old Litchfield physician lived he would have seen the rise of a school based directly upon the studies of Harvey and Sanctorius, the brilliant reasonings of Descartes and the works of Bellini and Borelli. The mechanical school rose in its pride on solid foundations which appealed to practical men with singular force. Very soon that "beatific epitome of creation," man, was "marked out like a spot of earth or a piece of timber with rules and compasses," and the medical terminology of the day became unintelligible to the older practitioners who could make nothing of the "wheels and pulley, wedges, levers, screws, cords, canals and cisterns, sieves and strainers," and they cracked their jokes on "angles, cylinders, celerity, percussion, resistance, and such-like terms which they said had no more to do with physic on the human body than a carpenter has in making Venice treacle or curing a fever." Once accepted, men had a feeling that so important a discovery must change all the usual conceptions of disease. As has been said before, Harvey tells that he had in preparation a "Practice of Medicine Conformable to his Thesis of the Circulation of the Blood," and it soon became customary to put in the title-pages of works some reference to the new doctrine. Even Riolan's "*Opuscula Anatomia*" makes an illusion to it. Walaeus, a keen defender of Harvey, published in 1660 a little compendium of practice, "*Ad circulationem sanguinis adornata*," but there is nothing in it to suggest any radical change in treatment. Rolfinck's "*Dissertationes Anatomicæ*," 1650, embracing the older and more recent views in medicine are *ad circulationem accommodatæ*, and even as late as 1690 the well-known anatomy of Dionis was *suivant la circulation*. With the loss of his work on the "Practice of Medicine," it is impossible to say whether Harvey's own practice was modified in any way. To part from the spirits and humors must have left his attitude of mind very skeptical; and that his "therapeutic way" was not admired (as Aubrey tells us) speaks for a change which may have set many against him. More important than any influence upon treatment was the irresistible change in the conceptions of disease caused by destruction of the doctrine of spirits and humors, which had prevailed from the days of Hipprocrates. While Harvey, as he says, had in places to use the language of physiology, that is, the language of the day, he makes it very clear, particularly in the second letter to Riolan, that he will have none of the old doctrine to which the "*de Motu Cordis*" dealt death the death blow.

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[12] Les Médecins au temps de Molière, 1863.

* The three volumes of his "Greek Thinkers," now in English dress, should be studied by every young man who wishes to get at the foundations of philosophy. The picturesque style of Professor Gomperz and his strong sympathy with science add greatly to the interest of the work.

But the moving hand reminds your orator, Mr. President, of a bounden duty laid upon him by our great dictator to commemorate on this occasion by name all of our benefactors; to urge others to follow their example; to exhort the Fellows and members to study out the secrets of nature by way of experiment; and lastly, for the honor of the profession, to continue in love and affection among ourselves. No greater tribute to Harvey exists than in these simple sentences in which he established this lectureship, breathing as they do the very spirit of the man, and revealing to us his heart of hearts. Doubtless, no one more than he rejoices that our benefactors have now become so numerous as to nullify the first injunction; and the best one can do is to give a general expression of our thanks, and to mention here and there, as I have done, the more notable among them. But this is not enough. While we are praising famous men, honored in their day and still the glory of this college, the touching words of the Son of Sirach remind us: "Some there be that have no memory, who are perished as though they had never been, and are become as though they had never been born." Such renown as they had time has blotted out, and on them the iniquity of oblivion has blindly scattered her poppy. A few are embalmed in the biographical dictionaries; a few are dragged to light every year at Sotheby's, or the memory is stirred to reminiscence as one takes down an old volume from our shelves. But for the immense majority on the long roll of our Fellows — names! names! names! — nothing more; a catalogue as dry and meaningless as that of the ships, or as the genealogy of David in the Book of Chronicles. Even the dignity of the Presidential chair does not suffice to float a man down the few centuries that have passed since the foundation of the college. Who was Richard Forster? Who was Henry Atkins? Perhaps two or three among us could tell at once. And yet by these men the continuity and organic life of the college has been carried on, and in maintaining its honor and furthering its welfare, each one in his day was a benefactor, whose memory it is our duty, as well as our pleasure, to recall. Much of the nobility of the profession depends upon this great cloud of witnesses, who pass into the silent land — pass, and leave no sign, becoming as though they had never been born. And it was the pathos of their fate, not less pathetic because common to all, that wrung from the poet that sadly true comparison of the race of man to the race of leaves!

The story of Harvey's life and a knowledge of the method of his work should be the best stimulus to the Fellows and members to carry out the second and third of his commands; and the final one, to continue in love and affection among ourselves, should not be difficult to realize. Sorely tried as he must have been, and naturally testy, only once in his writings, so far as I have read, does the old Adam break out. With his temperament, and with such provocation, this is an unexampled record, and one can appreciate how much was resisted in those days when tongue and pen were free. Over and over again he must have restrained himself, as he did in the controversy with Riolan, of whom, for the sake of old friendship, he could not find it in his heart to say anything severe. To-day his commands are easier to follow, when the deepened courtesies of life have made us all more tolerant of those small weaknesses, inherent in our nature, which give diversity to character without necessarily marring it. To no man does the right spirit in these matters come by nature, and I would urge upon our younger Fellows and members, weighing well these winged words, to emulate our great exemplar, whose work shed such luster upon British medicine, and whom we honor in this college not less for the scientific method which he inculcated than for the admirable virtues of his character.

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THE CLASSICAL SYMPTOMS OF HYSTERIA.[1]

BY PIERRE JANET, M.D.,
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III.

THE FUGUES, OR AMBULATORY AUTOMATISMS AND THE POLYIDEIC SOMNAMBULISMS.

A GREAT many hysteric accidents are directly connected with the kind of somnambulism we have just studied. In this lecture is described the exaggerations and developments that multiply to a very high degree the first monodeic somnambulism. The first fact we meet with is the hysterical mania of running away which we call ambulatory automatism, flights or, better, *fugues*, if we may keep the French word.

Illustrating by a certain number of clinical cases, attention was especially called to this curious one, already published in the *Gazette des Hopitaux*, 1895. The subject, a man, thirty years old, was employed in a railway station in the town of Nancy. This man, always easily affected and predisposed to fixed ideas, debilitated also by some tropical diseases, was at this time uneasy in his mind by family quarrels and by some accusations of his brother. On the 3d of February, 1895, he spent the afternoon in a coffee house that he left about five, ready to go and drive with a friend of his. He remembers perfectly all the little events of this day; he remembers also that while crossing the Stanislas bridge he felt a violent pain in his head as if he had been struck on the posterior part of his head. Immediately after that, something must have changed in the mental state of the patient, as he has entirely lost the memory of all that happened afterwards. When he comes back to consciousness, or rather when he resumes the thread of his recollections, the circumstances are changed to an extravagant degree. He was lying in a field, covered with snow, in the neighborhood of Brussels. He had felt a shock on the head at Nancy on the 3d of February and awoke at Brussels on the 12th; all that happened in the meantime, how he accomplished that singular journey, he does not in the least know.

By different means we could discover what he did during those eight days: overwhelmed with fear at the thought of the charge brought against him by his brother he constantly pondered on the means of running away, always with the rooted idea of taking refuge in a foreign country under a false name in order to escape pursuit. At last, exhausted with fatigue and want of food, he stretched on the snow in the fields with the vague idea that he was about to die. At this moment he could not help changing the bent of his thoughts and he thought that he would like to see his family before he died. The appearance of this idea of his family, which had never entered his mind during the last days, had an unexpected result: he got up, he was awake. This kind of awakening is very important and appears to be the same in many other observations.

It is easy to notice how obvious the analogy is between the phenomenon called hysterical *fugue* and the monoideic somnambulism. Here, too, is a certain idea, a certain system of thought that develops to an exaggerated degree while the other thoughts, relating to the former life, the family, the social position, the personality, appear to be suppressed. Out of the time of the fit, during the period considered as normal, the two inverse laws apply. The recollection of the *fugue* has vanished and, at the same time, the thoughts and the feelings connected with an idea that predominated during the *fugue* have disappeared more or less completely. On the contrary one finds in this state the development of the psychological phenomena that were suppressed during the period of the crisis, recollections of the whole existence, perception of all the present occurrences, exact notions of the personality. If to that one adds that these *fugues* present themselves in individuals who have already had many hysterical accidents, you may say that upon the whole, *fugues* are a kind of hysteric somnambulism. The exceptions, the appearance of those *fugues* in epileptic persons, was discussed. However, there are some differences between *fugues* and monoideic somnambulism which must be explained.

In order to understand that transformation of monoideic somnambulism into the hysterical *fugue*, we must study the states of mind which are in some manner intermediate. Polyideic somnambulisms which are opposed to the first by the multiplicity of the ideas that fill them are meant. Different observations were presented in which the ideas are manifold and bring on different comedies; the unity of the somnambulism is broken; there is something foreign to the idea itself that has unified those three or four ideas and has gathered them in one crisis. There are in our minds other systems than the precise system constituting an idea; for instance, there are the systems of thoughts and of tendencies that are called feelings or emotions. The feeling that arises from a fear of an ignominious charge, the feeling of curiosity, of love and jealousy, are systems of thought which possess a mental unity. Well in polyideic somnambulisms and in *fugues*, it is upon that more serious feeling that the dissociation has been born; it is a feeling in its entirety, a more or less precise feeling, that has separated from general consciousness and that develops in an independent way giving birth to these odd deliriums.

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[1] Author's abstract report of third, fourth and fifth lectures, delivered at the Harvard Medical School, Oct. 22, 24 and 25.

IV.

THE DOUBLE PERSONALITIES.

The somnambulisms are apt to present a new metamorphosis, whose scientific interest is very great, when they are so protracted and complicated as to give rise to what is called double existences, double personalities. This question presents here, as it were, a national interest, for it is in America that several of the most remarkable cases have appeared, and it is American doctors, as MacNish, Weir Mitchell, Dana and, quite recently, Morton Prince, who have devoted to it most interesting studies.

I. The type of double existences is given us by a celebrated case published in 1831 in a work of MacNish entitled " Philosophy of Sleep." A young lady had two forms of existence and she passed from one to another by a sleep. In one of these stages, the old stage, she was absolutely ignorant of the other, the new stage, and in this new stage also she had no remembrance of the former. In one state or in the other she did not remember her double character any more than two distinct persons remember each other's respective natures.

In connection with this case, opportunity was taken to lay before the students a graphic method invented by the lecturer in order to represent the various disturbances of memory in a very simple manner. Seven pictures were shown representing the more usual forms of amnesias, the retrograde amnesia, for instance, the continuous amnesia and their varieties. Special stress was laid upon a scheme representing MacNish's case and putting into evidence the fact that the oblivions and the remembrances alternate very regularly. This case deserves the name of reciprocal somnambulism. This absolute division of life into two alternating periods which are not at all conscious of each other is quite exceptional; we could only connect a small number of cases with the type of the patient of MacNish,— one of Dana, two cases of Charcot and the very interesting observation of Mary Reynolds by Weir Mitchell in 1888.

II. A new form of double personality can be called dominating somnambulism, because one of its essential features is that one of the states dominates the other. If amnesia can boast of having presented in the person of the patient of MacNish and that of Mary Reynolds the first examples of the first form, the history of Félida X. by Azam gives now to France an unquestionable superiority. This patient, as it is well known, had also two forms of consciousness, but in one of these existences she remembered all her former life; in the other state she remembered only the analogous periods; she entirely forgot the preceding period of more complete life. Azam had designated this depressed state with amnesia by the phrase, state I, because he saw the patient for the first time in this state; he called state II the more complete state which had the memory of all the life. The schematic figure gives us quite a characteristic image of these dominating somnambulisms which are more frequent than the first forms. A great number of observations can be brought together around the case of Félida.

It would be well to form a third group which might be called the group of complex cases in which some celebrated observations ought to be put. In these extremely complicated patients there is a great number of forms of existences, as many as nine or ten. These different psychological states offer very various relations with one another. Sometimes they are quite independent of one another and present simply a reciprocal memory; sometimes one or two of the different stages present a more extensive memory and deserve to be called dominating somnambulisms. Among these complex cases we may rank the observations of Louis Vivet, of Mollie Faucher and the most remarkable study of Dr. Morton Prince on Miss Beauchamp.

III. The time is insufficient to enter upon the psychological study of all the problems raised by the double existences of hystericals, but it is desirable to give a few indications about the general conception. Let us take up one more observation of a double personality which only differs from the preceding ones by a singular small detail, namely, that it was for a great part produced artificially.

Marceline is a young girl who was studied during fifteen years almost from the beginning of the disease till the death of the patient by tuberculosis. She was at the beginning in a lamentable state of exhaustion with all the symptoms of most severe hysteria. She could eat and retain without vomiting only in a somnambulic state; when she was awakened she fell back into the preceding state. So a kind of induced somnambulism was necessarily kept during all her life.

These two states of Marceline are quite like what we have just described in connection with the dominant somnambulisms of Félida, and it is proposed to call her an artificial Félida. It seems absurd to call state number one, or natural state, a state of mental depression incompatible with life; it is unlikely that this young woman has always been from the first in such a state. The state in which we saw her in the hospital with all her disturbances and insensibilities is an abnormal state brought on by illness, by hysteria which had evolved since her puberty. But what shall we do then with the state obtained through hypnotism and which was produced artificially? Is it a state number three? By no means. In this state her functions were normal; there is no reason for distinguishing this state from the natural state of her childhood, from the state number one.

For a long time in all the lectures in the Collége de France and in the Salpêtrière it was explained that such authors as Azam have embroiled everything by false denominations. The alert stage called state number II by Azam, which at the end of the life of Félida exists almost alone, is really the normal state, the state number I. There is nothing abnormal but the state of depression with amnesia which developed gradually after puberty and which was mistaken for a normal state. The essential phenomenon that is the basis of these double existences is a kind of oscillation of the mental activity which falls and rises suddenly. These states cease to be connected together as with normal individuals through gradations and remembrances, and here also is a mental dissociation more complicated than the preceding ones.

V.

FITS, SLEEP STATES, ARTIFICIAL SOMNAMBULISMS.

To-day it is necessary to dwell on some elementary, in some manner degraded, forms of somnambulism which are very common. The words " fits " and " sleep states " are vague words, under which very different phenomena are ranged; so we shall meet later on with many other forms of fits and sleep states but we must now study one of the most essential forms in which these two accidents are nothing but particular aspects of certain imperfect somnambulisms.

I. At first sight the patients who seem to have become subconscious and writhe in convulsions, appear to be very different from the somnambulists. The outer expression of the somnambulic idea was as clear as possible; there is nothing of this kind in convulsive attacks. However, many of these accidents have the same moral causes as somnambulisms. Let us consider also the occasional cause that determines the appearance of each new fit; it is easy to see that here again moral causes play an important part. It is obvious that in many cases there is an association of ideas between certain dreaded perceptions and the remembrances which bring on the fit as well as the somnambulism; the pretended hysterogenic points are merely spots in which certain peculiar sensations easily arise, associated with the remembrance of an affecting event.

At the end of the fit we must note that the hysteric fit does not seem to bring about a great physical disturbance, — the exhaustion, the irresistible need of sleep which characterizes the epileptic fit. Another characteristic phenomenon is that the hysteric patient seems to have forgotten everything and in fact remembers only the facts previous to the fit. Beware of crises of violent agitation, in which there is no loss of consciousness. Do not inconsiderately call that hysteria; it is nearly always something else.

It is now easy to verify that the crisis itself is, in fact, an *ensemble* of emotional manifestations. We can conclude that a great number of fits are nothing but aborted somnambulisms. The emotions seem to have lost their intellectual aspect and to have increased in their visceral and motor expressions; they appear to have fallen and to have become inferior, more vulgar.

II. We shall reach an analogous conclusion by examining another very frequent accident of hysteria, namely, sleep states. Different kinds of nervous sleep states were briefly described and the opinion was expressed that the description of lethargy has been rather exaggerated, and it is hard to understand how one can mistake an hysteric patient in lethargy for a dead person. The most frequent forms of these sleep states were discussed; in these sleep states the psychological phenomenon has not disappeared. By many methods one can prove the existence of thoughts that continue to develop in their minds. Some have in their minds fixed ideas, some are seized with a profound revery.

III. It is not desirable to conclude this study of hysteric somnambulism without indicating in its proper place, if not a new form, at least an important character of all the preceding forms. A very curious property of hysteric accidents is that they can be artificially reproduced. It is not the same about many diseases, about epilepsy, for instance. This character is developed to the highest degree in the hysterical somnambulisms. We find this reproduction in all the forms, in monoideic somnambulism by awaking in the mind of the subject the idea whose development fills up the somnambulism, in *fugues* themselves, in double existences as we have shown in the case of Marceline. This is still true with respect to those incomplete forms we have put under the name of emotional fits and sleep states.

The states artificially reproduced are soon a little modified by new ideas which may develop in those states of somnambulism without stopping them. Thus is found in some subjects an artificial state which has been given the name of hypnotism. First, considered in itself the hypnotic state has never any character which cannot be found in natural hysteric somnambulism. Secondly, if one examines the subjects with whom this state can be obtained one will be convinced that they are mostly hysteric patients having already had the mental state characteristic of hysteria. Thirdly, one can verify if one examines the matter without preconceived ideas that subjects troubled with other diseases than hysteria, epileptics, for instance, psychasthenics, lunatics affected with systematic delirium are not at all hypnotizable. Fourthly, this artificial somnambulism is healed and disappears in the same manner as natural somnambulism when the disease tends toward recovery. In a word it seems there is no reason for making a special class for the hypnotic state, — it is a somnambulism analogous to the preceding one and which differs from it in that it is obtained artificially instead of developing spontaneously.

Original Articles.

FLEXIBLE BALANCING SHOES.

BY L. R. G. CRANDON, M.D.,
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WHEN the specialist takes unto himself a class of cases it has been the custom, in large communities, to consider these cases his, to be treated no longer by other practitioners. The subject is then in danger of becoming intricate and over specialized and, therefore, not infrequently, may well be considered anew.

Feet have suffered under the care of the orthopedist. For several years my attention has been forced to the great number of out-patients at the Boston City Hospital who come with weak, pronated feet. Of these patients, fully half are wearing prescribed "orthopedic flat-foot" plates. During the past two years, for such patients, whatever the degree of weakness or pronation, unless practical ankylosis of the medio-tarsal joints has taken place, I have stopped making plates, and have been trying instead to shoe them wisely. In this endeavor I have been greatly helped by Mr. Lewis F. Small, specialist in shoeing.

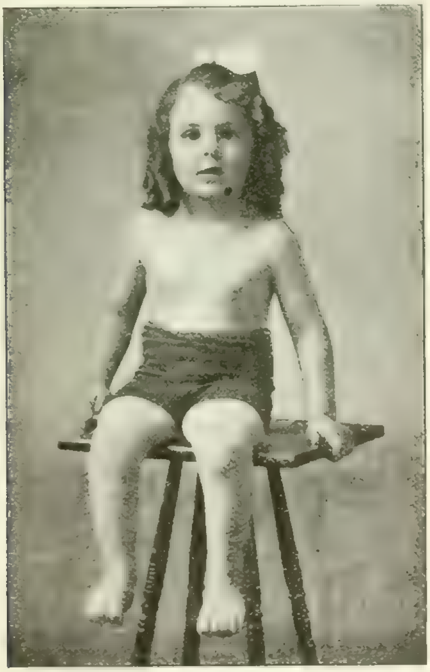


FIG. 1. Flexible feet in a healthy child.

Wise shoeing, as I see it now, consists not in fitting or in supporting the foot, but in allowing it absolute freedom of motion and in stimulating it to take such motion at every step. The wonderful flexibility of the infant's foot (Fig. 1), its similarity in many respects to the hand, has been forgotten. We have heard so much about "arches," that we have forgotten that what the foot wants is "arching." The perfectly strong foot has no arch when the whole body-weight is on it, but the inner aspect of the plantar region is filled by the strong muscle and tense tendons of plantar flexion. The high-appearing arch of the boot-wearing man may be seen in the weakest foot.

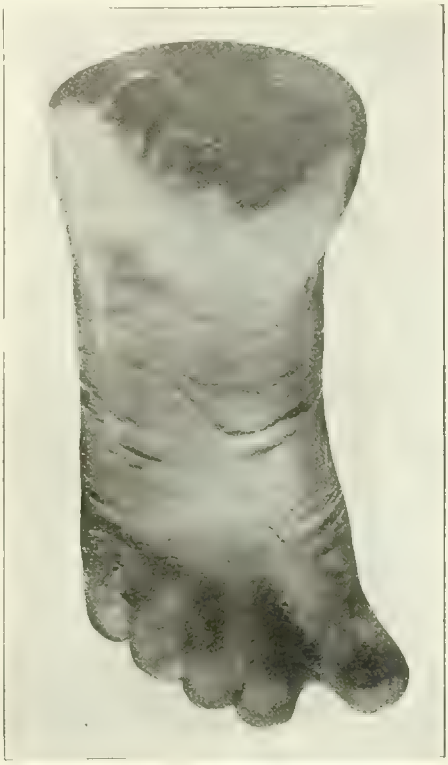


FIG. 2. Cast of healthy bare foot as it leaves the ground. Toes spread, great toe adducted; width of upper end of cast shows the amount of lateral excursion of the ankle-joint.

Examination of the heel of the human foot shows it to be a rounded protrusion suitable for pivotal action, tending to throw the body-weight at once elsewhere. The point of the heel is just behind the load-line of the body, making its function in walking to act as a posterior talon, to attempt to grasp the earth, while in running this talon, continuously off the ground, becomes a hock.

Having in mind then these anatomical considerations, foot-action in walking may be analyzed thus:

(1) The weight is placed on the rounded heel.

(2) As the sole comes to the ground, the rounded heel throws the weight along the outer ridge of the plantar region to the distal end of the fifth metatarsal.

(3) The toes take the ground in order, beginning with the little toe.

(4) As the toes take the ground, the weight leaves the heel and the whole foot grasps the ground like a hand, heel and great toe approach each other and every joint in the foot combines in "arching." Thus the walking foot is not a hock and a hoof, but rather a hand, with the heel a grasping talon.

(5) All weight, lastly, rests on the distal ends

of the first and fifth metatarsals, and the toes give a final push as the foot leaves the ground. At this last action, the toes are wide spread, the great toe is strongly adducted, and the ankle-joint in the active balancing has a considerable lateral excursion in both directions.

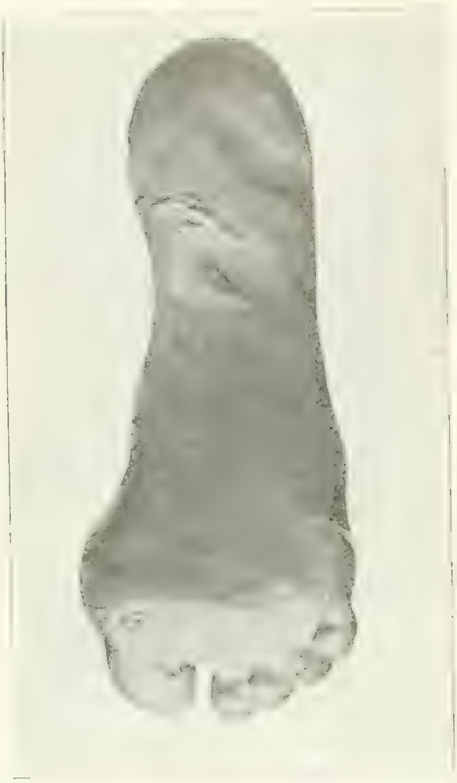


FIG. 3. Back view of cast of healthy bare foot as it leaves the ground.

In making a plea for wiser shoeing, it is not the intention to attempt to add a new arbitrary system to the many which have been proposed. It is not the wish to devise a new kind of "plate," but rather, to establish a method of shoeing which will allow free and natural foot-action. Cases of those who have suffered the worst kind of shoeing for years have, with bad shoeing itself, not ruined the foot so long as the foot has had freedom enough to remain active. What then are the requirements of a shoe which shall allow natural foot-action?

Flexibility. — The crutch or splint effect must be eliminated. Absolute flexibility of the shank is a requisite to preserve the function and strength, and, hence, the "arching" of the foot. The shank of the shoe should be of leather only. The shoe off the foot can be moved at the shank in all directions. This flexibility allows the foot to accommodate itself to uneven surfaces, and gives freedom to plantar motion, which is desired.

Balance. — By the flexible shank free action is made possible. Something must be done to stimulate action of every joint in the foot. In other words, to reproduce for the foot the natural conditions of unstable equilibrium, some construction must be developed to reproduce the effect of turf or leaf-mold underfoot, by a series of balancing platforms. Fixed planes in the shoe must be abolished. This idea of unstable balance was first recognized in the stimulating and wonderfully efficient Thomas heel. This heel is longer on the inner edge than on the outer; when the weight is just leaving the heel, the slanting front edge of the heel throws the weight toward the outside of the foot, and starts in a proper fashion the second stage of the act of walking. The same idea has been used by Mr. Small, who leaves the heel in its usual shape, but puts a piece of rubber in the outer anterior corner. This rubber gives way and starts the throw of weight over the outside of the foot. The idea of the Thomas heel is not the same as a lift on the inner edge of the heel. Such a lift produces a fixed cant, and breaks the rule which we want to establish, namely, that there should be no fixed planes in the shoe. The Thomas heel, or the heel with rubber, is a requisite to give automatic canting or instability, to attempt as it were to make the boot-heel similar to the rounded heel of the foot..

The shoes should be always low-cut, to allow free ankle motion.

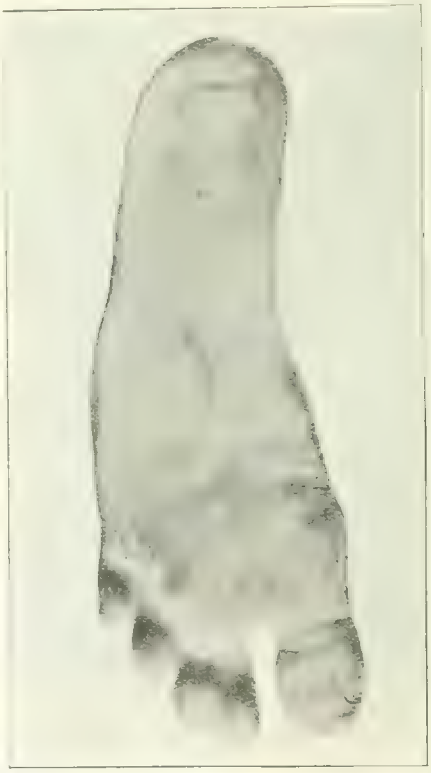
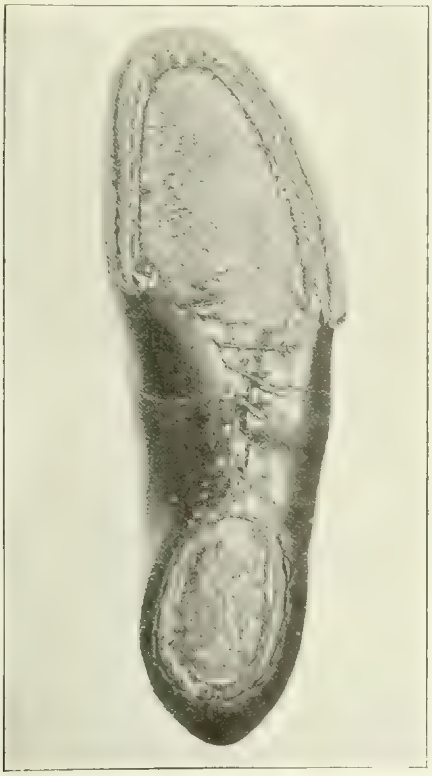


FIG. 4. Plantar aspect of healthy bare foot showing the adduction of great toe as the foot grasps the ground.

Fit. — The laity, particularly women, insist upon the fitting of a shoe, meaning mostly by that, a rounded or symmetrical toe. The orthopedist, in all previous attempts at shoeing, has put all his emphasis on the straight inner line of the toe. This is not necessary. All emphasis has been put on the front half of the shoe, a matter really of little importance. This is of little importance, because if (1) the inner line is made nearly straight to allow adduction, and (2) the shoe is broad enough for the weighted foot across the distal end of the metatarsals, "the toe," since it contains no part of the foot, can be made narrow and pointed in any direction desired. In other words, the forward half of the shoe should be a bag of leather of any shape desired, but attached to such a flexible shank that the shoe does not hold the foot or any part of it in this or that position, or in this or that shape, but allows the foot free action, the free action of a properly gloved hand. Such a shoe in the making is seen in Fig. (4).



Shoeing of this type is not enough; it stimulates right action, it allows correct walking, it does not make correct walking. Such shoeing stimulates the wearer to toe in slightly, contrary to the teaching of our childhood. It is a crying evil, in my opinion, that in nearly all the public schools, the so-called military position in standing is taught the children. Man thus artificially taught is the only animal that attempts to balance himself in walking with the feet spread out, divergent. Dr. Bradford says on this point:

"We have followed the French dancing master, the German drill-sergeant and the Swedish instructors as to the position (splay-footed) in which we place our feet until it is almost a habit of action. This is accentuated by inelastic, unbalanced footgear, which has weakened the American foot to an alarming extent.

"General Wood states, that in the forming of the scouts for the American army (in the Philippines), they were put into American boots, having stiff shanks, and unbalanced heels; and it was found that, at the end of fifteen miles, they were utterly exhausted, while their barefooted brothers were able to do twice the distance of the boot-wearers, either brown or white. The Filipinos would remove their boots at every opportunity."

The flexible unstable shoeing, already described, doubles the walking endurance of the individual who has had no trouble with his feet. With the case of weak or pronated feet, where actual ankyiosis has not taken place, where the patient has possibly worn plates, I frequently put a one-eighth inch lift on the inner edge of the heel for a short time to educate the foot to tip outwards. But main dependence for reform and foot-education is put upon barefoot walking in the grass, barefoot toe and heel exercises morning and night, exercises of grasping-action with bare feet in the air, and passive motion and massage to restore flexibility.

For the patient who is not carrying too much weight for his muscles, for the patient who has potentiality left in foot and calf muscles, this treatment suffices: exercises to restore muscles of the foot and its flexibility, education in walking and a shoe that allows freedom of action. In other words, this treatment is the direct opposite ot the method at other times devised, namely, the use of crutches (plates) to foster foot-weakness and to make the dependence permanent.

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EPIDEMIC CEREBROSPINAL MENINGITIS. A STUDY OF ITS ETIOLOGY, DIAGNOSIS AND EPIDEMIOLOGY BASED CHIEFLY UPON THE CASES OCCURRING IN WORCESTER, MASS.

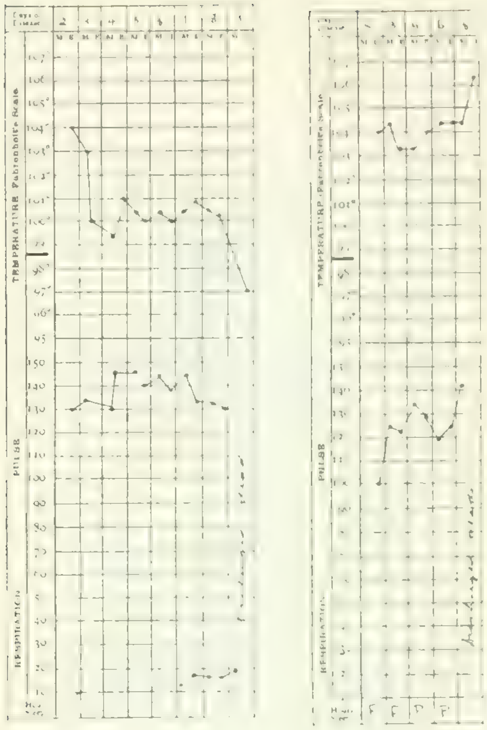
BY ERNEST L. HUNT, M.D.,
Assistant Pathologist to Worcester City Hospital.

(Concluded from No. 17, p. 466.)

The pulse and temperature are variable factors, and in themselves give little aid to the diagnosis. In the Worcester cases a rapid, feeble, often irregular pulse has been the rule. The slow pulse of intracranial pressure was not observed, but when present is a most important sign, and should be taken as an indication for lumbar puncture. The temperature curve is irregular. Often high, it is quite likely to be low. It is subject to remissions, but rarely reaches normal, if the disease is to any degree active, except just before death, when it may be subnormal, or hyperpyrexia may occur. Charts of (*a*) two fatal cases, (*b*) a case terminating favorably, (*c*) a chronic case with favorable outcome probable, are shown herewith.

Delirium associated with coma of greater or less intensity is present in all but the mildest cases, occurring in all of those here reported. It

A.



Two charts of rapidly fatal cases, showing entirely differing types of pyrexia.

B.

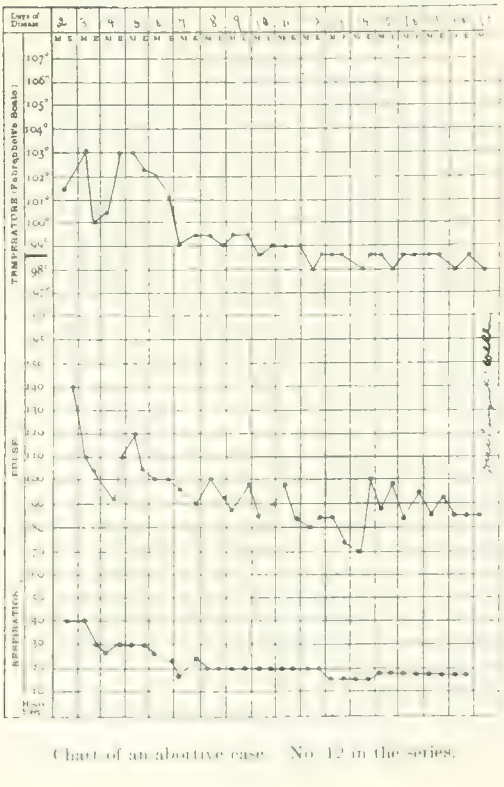


Chart of an abortive case. No. 12 in the series.

C.

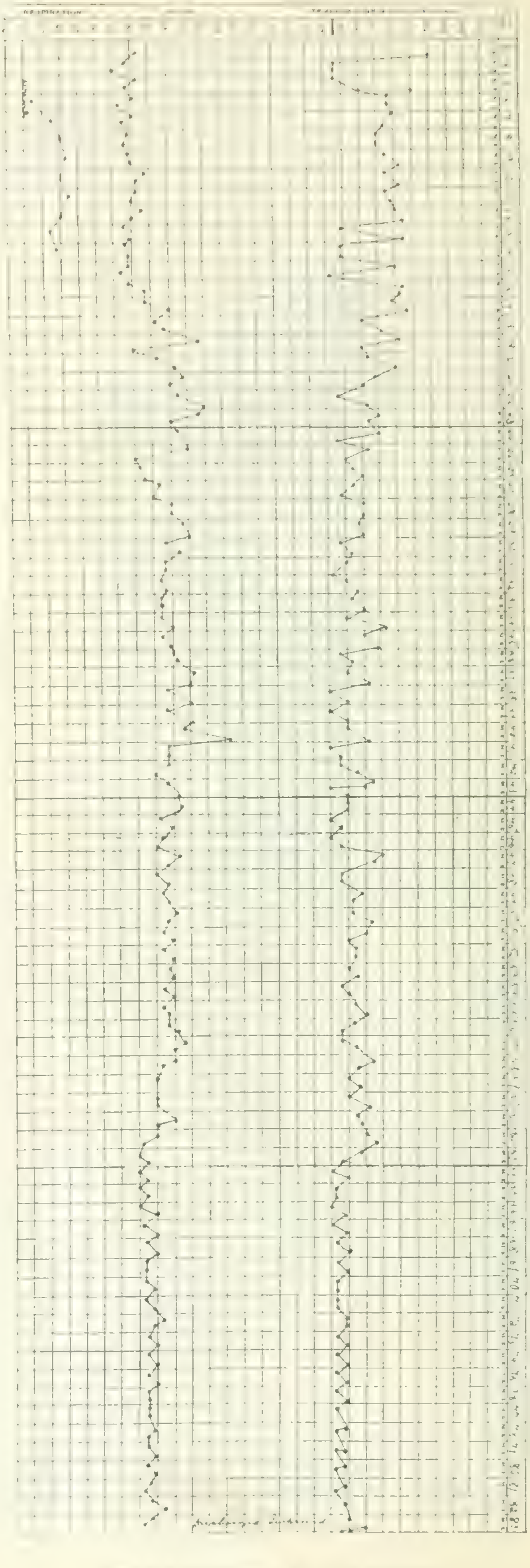


Chart of a chronic case. No. 13 in the series.

is always active, frequently violent and associated with great restlessness.

The eye symptoms of this disease are most important, and in obscure cases may aid greatly in clearing up the diagnosis. In this series of cases, the pupils were observed dilated in one case, and uneven in one. The reaction to light was sluggish in three, and absent in one (third nerve involvement). Divergent strabismus (sixth nerve involvement) occurred once. Constant rolling of the eyes occurred in one case (probably central in origin). In all but two of the remainder the pupils were noted to be "equal and to react."

Heine [22] finds eye symptoms in twenty-one patients in 100 cases of epidemic meningitis.

Davis [23] says that photophobia is a common and constant occurrence. It is an early symptom and may be even prodromal. Conjunctivitis occurs frequently and early (Davis). Since Robinson and Longcope [20] have recovered the meningococcus from a case of acute purulent conjunctivitis in a positive case of meningitis, the importance of that complication is apparent. These and the motor eye symptoms are of interest to the diagnostician. The deeper inflammatory lesions of the eye are of clinical and pathological interest only as complications of the disease.

Mental symptoms. — Besides the delirium already mentioned, distinct hallucinations are observed. One of our cases talked of walking about in the yard after having merely been up about the room. The condition is evidently due to organic lesions, and whether it will be persistent in the event of recovery from the disease remains to be seen.

Sensory symptoms. — Severe headache, especially of the occipital region, and pain in the back are constant symptoms. Excruciating neuralgic pains in the extremities are also common and very persistent. They are often associated with the sharp cry so characteristic of meningitis. A child may lie in a comatose state, and from time to time emit a sharp cry, presumably a reflex phenomenon, but quite possibly depending on an irritation of some of the centres governing speech. General cutaneous hyperesthesia is also a nearly constant concomitant of the active stage of the disease.

Skin symptoms. — In nearly half of the cases studied, there was observed an abnormal sensitiveness of the vasomotor apparatus governing cutaneous circulation. This was evidenced by a fleeting erythema which would come and go upon exposure of the skin to air; also by the phenomenon known as tache cérébrale, which was positively observed in eight of the cases, and not noted in the rest. In a few cases transient macular and maculo-papular eruptions were observed. In two, one or more large, bluish areas were noted about the legs and trunk, but which also proved to be transient. In two cases the trunk and legs were dotted thickly with tiny petechiae. Both were fatal cases. (See cases 5 and 7.)

Herpes labialis occurred five times, once slightly, twice moderately, and twice extensively. Three of the cases happened to be those which recovered, a fact, so far as it goes, in harmony with the early teaching that the presence of herpes was a favorable sign. As this eruption is common only idiopathically, in this disease, malaria and in pneumonia, it is valuable as a differential sign. It occurred in 25% of the Gouverneur Hospital cases.[41]

Motor symptoms.— In very young children the onset of the disease may be marked by convulsions, as occurred in one case of this series. They may occur at any point in the active stage of the disease, but are not common.

Of all clinical manifestations of the disease, the most typical, and most important from a diagnostic point of view, are those resulting from irritation and pressure upon the spinal nerve roots. Not only does this give rise to the most excruciating pain, referred to the occipital, cervical and dorsal regions, but the great extensor muscles of the neck and back, the flexors of the thighs and extensors of the feet are thrown into tonic spasm, varying in intensity according to the severity and extent of the inflammatory process. In extreme cases the patient lies on his side, with his head drawn back almost to the level of the shoulders, and held rigidly. The back is stiff and arched forward. The thighs are slightly flexed on the trunk (or may be extended) and feet extended and adducted. Often the upper foot is crossed over the instep of the lower. Occasionally the hands and arms share in the hypertonic spasm. The hands are pronated, and fingers clinched with thumb in. The whole body is rigid. The patient lies quietly and moans; a touch on the back elicits a cry. This picture, however, does not portray the average case. Retraction of the head and rigidity of the neck were present to a greater or less degree in all of our cases; two presented opisthotonos. The majority, however, presented less extreme retraction, but marked rigidity. In the chronic case this hypertonicity gave way to paralysis, affecting the patient's right arm, so that he could not move it for several weeks. The muscles of deglutition may show hypertonicity or the later paralysis.

Occasionally the general hypertonicity is hardly apparent to ordinary examination. The patellar reflexes may be increased or entirely abolished. The Babinski reflex may react occasionally, and is of value where positive. Ankle clonus is occasionally seen, and implies a cerebral lesion. Neither, however, have the value which has recently been accorded to the procedure devised by Kernig in 1882 [24] to demonstrate this hypertonicity when it was not otherwise apparent. The test consists in flexing the thighs upon the trunk to an angle of 90°, then raising the legs until they are in line with the thighs. Kernig realized the fact that in all normal adults this could not be done, and considered his test positive only if motion was restricted to 135° or under. The procedure was popularized in France by Netter in 1898,[24] and has been in general use since. Recently Willson of Philadelphia [25] has studied the test in 120 cases,— 73 adults and 47 children under ten,— finding it present in 29 of the former and 3 of the latter in nonmeningeal disease. He concludes that it is "by no means a positive indication of either meningeal or brain or cord involvement, but when present in association with other signs, it may be looked upon as confirmatory to a high degree." He points out that it persists late with convalescence, and may be permanent.

In the Worcester cases it was decidedly positive in 10, suggestive only in 2, absent in 1, and in the rest not noted. It was present in nearly all of Huber's 120 cases, and in 29 of Draper's 46, in 5 of which it is absent, and not noted in 12.

Differential diagnosis. — When a case of epidemic meningitis is seen presenting the characteristic features of sudden onset, a chill or nausea, vomiting and violent headache, delirium or coma, with stiffness of back and neck and retraction of head, leucocytosis and Kernig's sign, it could hardly be confused with any disease not meningeal. But all cases are not typical. Having an epidemic prevailing, the diagnosis is rendered easier by the greater likelihood of such an infection occurring. And therein lies another danger. It is as grave an error to call another disease meningitis as to fail to recognize a case when one is seen. Hence, it must be borne in mind that nearly any acute, infectious disease, especially in children, may manifest meningeal symptoms, such as convulsions, retraction of the head and some rigidity. In their onset, *scarlet fever* and *varicella* might readily simulate meningitis. In either, an expectant plan of treatment would presently relieve the situation. Within a month, I have known a chronic case of meningitis to be mistaken for *acute articular rheumatism.* In this instance the presence of sluggish pupils, semi-coma, rigid neck, free movement of limbs at times, lack of joint lesions of characteristic rheumatic type, ankle clonus, Kernig's sign and Babinski's reflex, should have sufficed. *Malaria* from its onset with chill, fever and headache, would have to be considered, but could be readily ruled out by lack of meningeal symptoms, the large spleen (spleen is rarely enlarged in meningitis) and the microscope. *Typhoid fever* presents some resemblance to the chronic forms of meningitis, from its cerebral symptoms, pyrexia and wasting. The history, different type of delirium, splenic enlargement, rose spots, and the Widal reaction should suffice to differentiate it. Grawitz has been quoted as receiving, under the diagnosis of meningitis, 17 cases, all within a period of a few weeks. Three proved to be examples of intestinal intoxication, and 7 were tuberculosis. These require mention only as illustrations of possibilities of errors, when an epidemic of meningitis is prevalent. Perhaps the most common disease, with which acute meningitis could be confounded, is pneumonia. With children, the sharp onset with convulsions, delirium, hyperpyrexia, and especially leucocytosis and herpes, might well simulate the former disease. The physical signs alone would be our chief reliance. The frequency of association of meningitis with pneumonia adds a further difficulty of distinguishing them. Both may, of course be present in the same patient.

To clear up such a case as that just supposed, as well as to differentiate epidemic cerebrospinal meningitis from (*a*) acute hemorrhagic meningitis, (*b*) meningitis due to pneumococcus and other pus-forming organisms, (*c*) from tubercular meningitis, the differential diagnosis between which forms cannot positively be made by ordinary methods, since nearly all signs and symptoms are common to each, we fortunately have in the method of obtaining the cerebrospinal fluid for examination during life, by the operation of lumbar puncture, introduced by Quincke in 1891, a safe and reliable procedure. The characteristics of the fluid so obtained, and the technique for the bacteriological examinations have been described already, and the many cases cited, in which the question of the etiology has been settled by its aid, are sufficient to convince any reasonable sceptic of its value. The writer has made the puncture personally many times, and seen it done many times, but never has seen harm accrue from it.

A word, perhaps, may be added as to the microscopical character of the fluid, apart from the bacteriological. The following differential count of 1000 cells in a coverslip preparation from one of the meningococcus cases may be taken as typical: Polymorphonuclear leucocytes, 83.8%; small mononuclear leucocytes (lymphocytes), 3.7%; large mononuclear cells exhibiting phagocytic property toward polynuclears, 5.1%; desquamated endothelial cells, 4.8%; red blood corpuscles, 2.7%.

In many cases where the meningococci were so few as readily to be overlooked, the cells were present in the above typical association. From cells alone, however, the penumococcus case cannot be differentiated from the meningococcus case. In tubercular meningitis the fluid is usually clear, macroscopically, but centrifugalization will deposit cells in which the small lymphocytes are predominant. In the last case of tubercular meningitis seen by the writer, he succeeded in staining the tubercle bacilli in a centrifugal sediment from the fluid. Autopsy later confirmed the diagnosis.

Epidemiology. — The Worcester cases have been gone into with some care in the endeavor to trace any plausible sequence or relationship between them. Several interesting coincidences of time and place were observed, but in no case was there evidence of direct contagion. The Shrewsbury boy was taken ill Thursday. Saturday another boy who had been with him the previous Sunday was taken ill with a disease *clinically* the same, and lived but seven hours. Such nearly simultaneous onset argues against one having communicated it to the other, rather pointing to a common source of infection. Two of the Worcester cases were from parallel streets but a period of thirty-eight days elapsed between. Two others were also from parallel streets, and but two days elapsed between their respective onsets. It happens, however, that one street has an Irish population, while the other is peopled by Hebrews. Each community may therefore be regarded as socially exclusive toward the other.

Two other cases had both visited on the same street at about the same time, and were taken ill only four days apart. One, however, showed pneumococcus while the other was meningococcus infection. A week later another case of pneumococcus infection developed on the same street.

Most interesting of all in this connection, is Case V, an aged woman living almost in seclusion, in the third story of a building in the business section and who had not been out of her apartments for three weeks — an impossible period of incubation. Practically the only person with whom she came in contact was a nephew who was employed in the same store in which Case II worked at the time he was taken, but seventeen days had elapsed, and so far as could be learned the nephew had been well in the meantime.

From the length of time elapsing between cases, in several instances greater than the span of life of one generation of the organism, it is evident that the organism lived without causing meningitis. Since it is not known to exist as a true saprophyte it seems necessary to assume here, as has been proven possible in certain cases elsewhere, that it lived in the nasal, oral, or nasopharyngeal cavities, and perhaps middle ears of individuals who showed perhaps no greater evidence of its presence than rhinitis (Lord) or otitis media (Westenhoeffer).

In the light of the irregular distribution of the cases, and especially of such an instance as Case V, it seems fair to assume that under some conditions the organism may retain its vitality when deposited as expectoration, sufficiently long to be air-borne as dust to susceptible individuals. Indeed Westenhoeffer quotes Jaeger and Germano as having recovered the meningococcus from sputum after seven days' drying.

In view of this probability the prophylaxis is obvious and may be summed up in a word: Careful cleanliness of the upper air passages, absolute prohibition of promiscuous expectoration, and clean streets.

One noteworthy peculiarity of the disease, noted in all epidemics, is its remarkable selective propensity. It rarely attacks more than one member of a family, and when it strikes, it very commonly seizes upon the apparently most active and robust of the children. To explain this Westenhoeffer, discreetly abetted by Elser, advances a tentative theory based upon his autopsied cases, that the presence of naso-pharyngeal adenoids and the status lymphaticus are of importance as determining the susceptibility of individuals to this infection both by offering an avenue of entrance to the organism, and by the well-known lack of resistance characteristic of the lymphatic state. Two of our autopsied cases (14 and 18) favor the belief so far as two cases may be taken as evidence.

Conclusions. — From the evidence contributed and compiled in the preceding pages, it may be concluded (I) that the diplococcus intracellularis meningitidis of Weichselbaum is the essential etiological factor in epidemic cerebrospinal meningitis, and (II) that the diagnosis may be *positively* made in nearly all cases by the examination of the spinal fluid obtained during life by lumbar puncture, and in no other way; (III) that it is probably an inhalation disease, and is therefore preventable.

In closing, the writer wishes to extend his thanks to Drs. Chase of Shrewsbury and McKibben of Worcester for data in Case I, as well as to the members of the visiting and house medical staff of Worcester City Hospital for the majority of the clinical material upon which this study is based, also and especially to his chief in the pathological department, Dr. Baker, for confirmatory observations and helpful suggestions.

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Clinical Department.

TWO CASES OF LEAD PALSY. DANGERS FROM USE OF LEAD PIPE IN WATER SYSTEMS.*

BY HENRY C. BALDWIN, M.D., BOSTON.

The two cases shown to-night are cases of chronic lead poisoning occurring in children. In both instances, the lead poisoning followed the introduction of town water. The State Board of Health was notified in each case, and the investigation by the board showed that in both towns there was an epidemic of lead poisoning due to the action of the water upon the lead pipe that was used to carry the water from the main to the house. This epidemic of lead poisoning had not been recognized by any of the local physicians previous to the reporting of these cases to the State Board of Health, and the subsequent investigation. The sufferers had been treated for colic, indigestion and debility. As a result of the investigation of the State Board of

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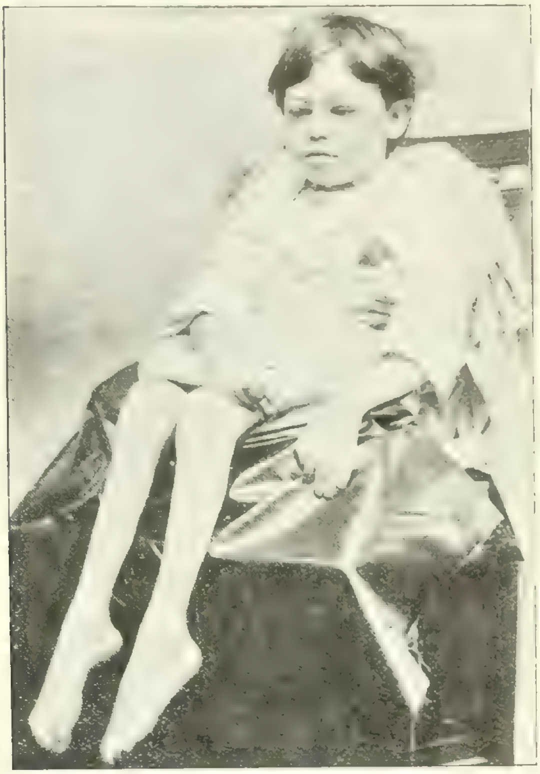
* Read May 17, 1906, before the Society of Psychiatry and Neurology.

Health, and of the dangerous conditions found, changes ought to be made in the material of the pipes used to convey the water from the mains to the house.

E. K., eleven years old. Resident of Milford, Mass.

Patient came to the hospital Dec. 15, 1896, with a letter, stating that for two years she had been suffering from hysteria and indigestion.



E. K. Shows condition of patient when first seen. Extensor paralysis of arms and legs.

The patient was a delicate looking girl, who gave the following history. Up to five years ago, she drank water that came from a well. For the past five years, city water had been used, and the State Board of Health found that there was a hundred feet of one-half-inch lead pipe which connected the main to the tap in the house.

Two years ago she began to have nausea, vomiting, abdominal pains, and pains in her feet and legs, with swelling and tenderness on pressure. Her hands became weak, and her toes dragged so much that she could not walk. Her muscles wasted in her arms and legs, and she cried nearly all the time. For five weeks she could not feed herself. The past year she has been gaining. She has partially regained the use of her hands, but cannot stand.

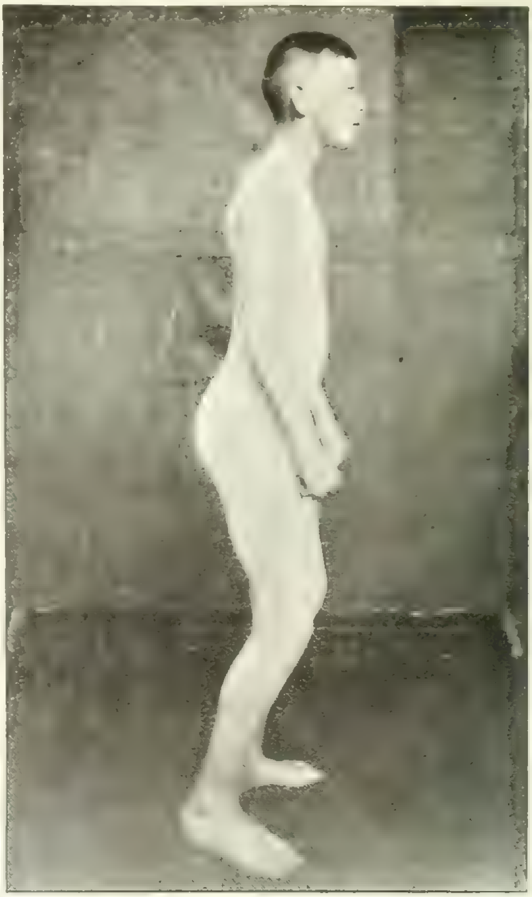
The patient had the most marked lead line that I have ever seen, which was on both upper and under jaws, outside and inside the teeth as well. It is only in the most marked cases of lead poisoning that one sees the lead line on the inside of the teeth on the upper jaw, — probably because the tongue keeps the gums at the roof of the mouth clean, so that the sulphide of lead does not form in consequence of the decomposition of food. It is interesting to note that though a lead line usually disappears pretty quickly under treatment, in this instance a lead line could be seen three years later.

The extensor muscles of the arms and hands were wasted, and there was complete wrist-drop. The extensor muscles of the legs were also atrophied, and there was complete toe-drop. The patient was sent into the hospital and put on iodide of potash. Later, both the Achilles tendons were cut in order to relieve the contraction of the flexor muscles.

The patient has continued under my care ever since. She has recovered the use of her hands and, although the extensor muscles are not up to the normal strength, the electrical reactions are normal. She has not recovered the use of the extensor muscles of her legs, and presents the picture of a case of anterior poliomyelitis, and the muscles do not respond to electricity.

The lead poisoning checked her growth. She comes from a family of tall people, but she has not grown any in height since I first saw her ten years ago.

The State Board found that there were seventeen grains of lead to a gallon, or 0.295 parts per 100,000 in the water as it passed through the pipes, the limit of safety of lead in water being .05 per 100,000. It is interesting to note that the mother and two younger sisters had marked lead lines at the time when I first saw the patient.



E. A. F. Shows attitude of patient when first seen. Rigidity of flexor muscles; paresis of extensor muscles of arms and legs.

E. A. F. Fifteen; resident of Norwood, Mass.

July 16, 1904, came to the Massachusetts General Hospital. He stated that for a year and a half he had noticed that his hands and feet were getting stiff and weak, and that he had cramps in his abdomen.

Physical examination showed that both his hands and arms were held in the position of flexion, and that there was wrist-drop. He stood with his knees bent, walked with a stiff gait, and had toe-drop to a moderate degree, *i.e.*, there was paralysis of the extensor muscles of the arms and paresis of the extensor muscles of the legs. The reflexes were normal. There was marked myokymia.

Examination of the gums showed nothing except that the boy took remarkably good care of his teeth.

Lead was suspected, and a sample of urine, which was examined by Dr. E. S. Wood, showed the presence of lead. Stipple cells also were found in his blood.

The case was reported to the State Board of Health, and upon investigation, an epidemic of lead poisoning was found to exist at Norwood. Suffering the fate of many would-be reformers, my information was not well received in Norwood, one of the commissioners complaining to the engineer of the State Board of Health, that " some fool of a doctor had said that there was lead in the water."

The presence of lead in dangerous quantities in the water explained the great benefit that some of the townspeople received from a change of air. A lady for several years took a trip abroad each summer. While she was away, she was free from all digestive disturbances; at home she was troubled with severe attacks of colic, indigestion and anemia. A change of water relieved all symptoms after the presence of lead was known.

Both these cases are interesting in that they show a condition that occurs with children, but occurs rarely in adults, namely, a paralysis of the extensor muscles of the legs as well as of the hands. It was the paralysis of the extensor muscles of the legs in this second case that enabled me to make the diagnosis of lead palsy before the examination of the urine and blood confirmed the diagnosis.

In the present year's report of the State Board of Health, the amount of lead pipe used in the different water services in the various cities and towns of Massachusetts has been published. From this table it appears that three cities, Chelsea, Everett and Fall River, use service pipe of lead. In 23 other cities and towns, lead is chiefly used; no lead whatever is used for service pipes in 83 cities and towns.

The cause of the action of water upon lead pipe has been found to be the amount of carbonic acid which is present in the different waters, and this amount varies under certain conditions, so that a water which at one time may be comparatively harmless becomes dangerous. Ground waters, as a rule, contain more carbonic acid than surface waters, and the greatest number of lead cases investigated have occurred in Fairhaven, Kingston, Lowell, Milford and Milton where ground waters are used. Surface waters are also dangerous, and the town of Norwood is an illustration.

There seems to be no law that forbids a person to continue to take poisonous doses of lead in drinking water after the danger has been pointed out, and there seems to be no law to prevent cities and towns from installing a dangerous water system, and continuing the same system in use after the effects of its use have become manifest. It is to be hoped that some change will be effected either through the intelligent efforts of the physicians in the community or in consequence of the liability of such delinquent cities and towns to lawsuits for damages.

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Medical Progress.

RECENT PROGRESS IN SURGERY.

BY HERBERT L. BURRELL, M.D.,
AND
H. W. CUSHING, M.D., BOSTON

(Concluded from No. 17, p. 477.)

INDIVIDUAL EXCISION AND SUTURE IN OPERATING FOR THE REMOVAL OF HEMORRHOIDS.

Lewis S. Pilcher[16] has used the method described at the Seney Hospital, in Brooklyn, during the past few years. He is much pleased with it. He considers that it is simple and free from unpleasant complications. He does not claim originality, but simply considers that the method is not sufficiently well known. The patient is prepared as for any hemorrhoid operation. A projecting mass is seized with forceps so as to put the parts at the base wall upon the stretch. Incision is made through the mucous membrane on either side, or at the muco-cutaneous junction. Beginning with the apex of the little triangular flap of skin, dissection is made up from the fibers of the sphincter to the base of the pile. The narrow pedicle of the pile is then controlled by a hemorrhoidal clamp, and the pile is tied off and cut flush with a clamp, by knife, or scissors.

Pilcher states: " Remembering that the chief blood supply of this pile descends into the submucous tissue vertically from above, if underneath the fold of mucous membrane which is just above the point reached by the clamp, a curved needle, armed with ligature threads, is passed well into the submucous tissue, and, being drawn through, carries such a thread, when it is tied the main blood-supply of the parts below is cut off.

" This is the key to the situation, — the passing of this needle through the fold of the mucous membrane just above the point reached by the clamp, and the applicatian of the ligature at this point, tied tightly.

" For this ligature chromicized catgut is to be preferred, and it should be long enough to serve not only for this primary point of ligature, but also for the subsequent suturing now to be described.

" The needle, still armed with the long end of the ligature thread, is now carried as a running suture around the mass in the grasp of the clamp, passing through the mucous membrane and the tissues underneath the arms of the clamp two, three or four times, as the extent of the disease may seem to require, until all of the tissues grasped by the clamp have been included. The clamp is now loosened by slight manipulation, and withdrawn, after which the ligature is drawn up tight, by which maneuver the entire site of the pile is included in the line of suture down to the point of the mucocutaneous junction."

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[16] Ann. of Surg., vol. xliv, no. 2, Aug., 1906, p. 275.

A REVIEW OF FIFTEEN HUNDRED OPERATIONS UPON THE GALL BLADDER AND BILE PASSAGES WITH ESPECIAL REFERENCE TO THE MORTALITY.

Dr. Wm. J. Mayo[17] reports the operations done between June 24, 1891, and May 1, 1906, by Dr. Charles H. Mayo and himself. In these cases there was an operative mortality of 4.43%. There were 319 cholecystectomies with a mortality of 3.13%. Mayo is of the opinion that cholecystectomy has an increased field of usefulness, but does not consider that it will replace cholecystostomy. Two hundred and seven operations were done upon the common duct, and these are arranged into four groups: (1) 105 patients were operated upon, in whom gallstones were present in the common duct but without immediately active symptoms. The mortality was 2.9%; (2) 61 patients were operated upon where there was active infection not only in the common duct but where it involved the ducts of the liver. Stones were usually present. There was a mortality of 16%. (3) There were 29 cases in which there was complete obstruction in the common duct, with a mortality of 34%; (4) there were 12 patients who had malignant disease which involved the common duct, with a mortality of 33⅓%.

The relation to pancreatitis is interesting. Of the 1,500 cases, the pancreas was involved to a noticeable extent in 86 cases. Of the 66 deaths that occurred 10% or 15% were accidental and could have been eliminated. The largest number were due to cessation of liver function, usually the result of infections, microscopical examination showing destruction of the epithelial elements of the liver and often fatty degeneration. Next came exhaustion from blood changes due to chronic cholemia.

AN EXPERIMENTAL STUDY OF SUTURE OF ARTERIES WITH A DESCRIPTION OF A NEW SUTURE.

George Morris Dorrance[18] gives the various methods that have been devised for suturing arteries. He has done fourteen experimental operations, nine on horses and five on dogs. Dorrance's suture is a No. 1 Pagenstecher thread used in a fine sewing needle. The clamps used are limber-bladed forceps, the blades of which are covered with rubber tubing. The method of suturing a longitudinal cut is as follows: The clamps are applied 2.5 cm. above and below the cut. The suture is started 1.5 mm. above the cut edge; the suture is passed through the outer two coats and tied; the end of the suture is grasped by a hemostat; the needle is next passed through all the coats of the artery on both sides 1.5 mm. below the first suture and 1.5 mm. from the cut edge; the suture from now on is a continuous mattress with the dropping back one half a suture length every third suture until the end of the incision is reached, then the suture is passed through the outer two coats 1.5 mm. below the lower end of the cut and a half hitch made to tie the suture. The same suture is continued as a whip-stitch over the edges of the artery outside of the mattress suture until the starting point is reached, when the two ends of the suture are tied. The artery is grasped in a gauze pad, the distal clamp removed, then the proximal clamp and the artery is dropped back in place and the deep fascia sutured around the line of approximation.

"The method of suturing an oblique cut is practically the same as the longitudinal. It is as follows: The clamps are applied 2.5 cm. above and below the cut edges. The suture is started 1.5 mm. from the lateral end of the cut and passed through the outer two coats and tied; the end of the suture is grasped with a hemostat. The suture is continued as a continuous-mattress suture, dropping back one half a suture every third stitch until the opposite end of the cut is reached, then the suture is passed through the outer two coats and a half-stitch made to tie the suture; the same suture is continued back over the line of suture as an over-hand whip-stitch outside the mattress suture until the starting point is reached, when the two ends are tied. The mattress suture should be 1.5 mm. from the cut edged at all times. The deep fascia should be sutered around the line of approximation.

"The methods of suturing a complete transverse division of an artery is as follows: The clamps are applied as before. The cut edge of the artery are grasped with dissecting forceps and the suture is passed through the upper edge of the artery from without in and through the lower end from within out; the needle is then reversed and brought back 1.5 mm. to one side of the former suture and tied. (The suture is really a single-mattress suture.) The suture is continued as a continuous-mattress suture, dropping back half a stitch every third suture until the starting point is reached, then a half stitch is made and the suture continued back as a whip-stitch until the starting point is reached again; then the two ends are tied. The suture is started on the anterior surface near the handles of the clamps. When the suture reaches the farther side of the artery the handles of the clamps are taken from the lower portion of the wound and placed in the upper portion; in this way the surface of the artery which was anterior is now posterior, and the suture can always be kept in sight."

ANEURISM OF THE SUBCLAVIAN ARTERY.

Savariaud[19] has collected the results of operative treatment of subclavian aneurism during the past twenty years. The peripheral ligature of the aneurism above and below gives the best percentage of recovery. Nine cases recovered. Twenty-two cases of extra subclavian aneurism were treated by incision and ligature of the second or third part of the vessel. Proximal ligature is statistically very dangerous. Gelatin treatment has not succeeded in effecting permanent cures.

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[17] Ann. of Surg., vol. xliv, no. 2, Aug., 1906, p. 209.

[18] *Ibid.*, Sept., 1906, p. 409.

[19] Rev. de Chir., xxvi, no. 7.

The literature on the subject is fully considered.

A METHOD OF TREATMENT OF HEMORRHAGE.

Crile and Dolley [20] state that the four principal methods of treating hemorrhage are: (*a*) The administration of various fluids, such as normal, saline, Ringer's or Locke's solution; (*b*) posture; (*c*) bandaging or other means of compressing the extremities and the abdomen; (*d*) stimulants.

The recent technique of Carral has been utilized by these investigators in a number of experiments. The article states that "the lumen of each vessel during the suture is closed by means of the author's special clamp used in closing the carotid and other arteries. After the anastomosis is complete and the line of union proven impervious, the arterial blood of the donor is allowed to flow into the vessel of the donee until a sufficient amount of blood has been transferred. If the proximal end of the artery of the donor be anastomosed with the proximal end of a corresponding artery of the donee there is virtually no risk of excessive blood transference, as the two pressures will tend to balance at some point lower than the normal.

"In our researches every degree of hemorrhage was treated. Most of the cases were first treated by other methods. After these had wholly failed, transfusion was done. Later in the research the animals were at once bled to a presumably fatal degree. Without exception they recovered. Even when the animal was bled until the respiration ceased and no pulse wave reached the carotid artery, and after apparent death, *i.e.*, when the animal appeared to be dead but the heart on inspection still showed a rhythmic contraction of the auricle, though there was not the slightest circulation, in every instance the animal was resuscitated. However, after every ryhthmic contraction wave had disappeared — usually from eight to fifteen minutes after cessation of the circulation and respiration—the animals were not resuscitated. . . .

"After the technique is learned the anastomosis may be completed in a few minutes. Under local anesthesia we performed such an anastomosis between the radial artery of a man with the proximal end of the basilic vein of his wife and readily transferred some of his blood to her circulation. This method would be applicable to any case of hemorrhage not amenable to ordinary methods. We are unable to resist the conclusion that the factor of hemorrhage may, under favorable circumstances, be eliminated."

THE SERUM THERAPY OF TETANUS.

Jacobson and Pease [21] have considered the therapeutic value of the antitoxin treatment of tetanus. In their paper they consider the tetanus bacillus, the conditions covering infection, the distribution of the tetanus bacillus in the body, the period of incubation, the relation of toxin to the nervous system, tetanus antitoxin injections and local tetanus.

The following methods of injection were used in cases treated by hospital surgeons in hospitals:

Sixty-six subcutaneous injection; 48 injection of the serum into various structures; 12 intraspinal; 16 intramuscular; 1 intracerebral; 1 intravenous; 42 subcutaneous injection of antitoxin made and furnished by the New York State Board of Health; 16 treated by injection into various structures of antitoxin made and furnished by the New York State Department of Health; intracerebral of antitoxin made and furnished by the New York State Board of Health.

In conclusion Jacobson and Pease summarize their article as follows: "But a word is necessary, in conclusion, to summarize the results of serum therapy in the light of the laboratory studies referred to and the clinical experiences herewith submitted. As a prophylactic measure it merits our fullest confidence, but as a therapeutic agent after tetanus is fully established we are forced to admit that as yet no method has been discovered whereby it can be administered so as to reach effectively the toxin not free in the blood or lymph."

THE SERUM THERAPY OF TETANUS.

Dr. C. A. Porter [22] has written an interesting paper on "The Serum Therapy of Tetanus." He states that "briefly put, our present knowledge is as follows: Tetanus toxin, by diffusion from the local lesion, — first, enters the motor nerve plates of the adjacent muscles, passing thence within the axis cylinders of these motor nerves upward to the motor ganglia in the cord; secondly, by lymphatic absorption it enters the general blood current, where it remains until it is excreted or destroyed, or is carried to all the muscles of the body, to be absorbed through their motor plates. This centripetal passage of the poison occurs in response to a very powerful affinity between the toxins and the higher central ganglia, which is not satisfied until a stable union of cell and poison has been formed, often only to be dissolved by death. This fact, that tetanospasmine, wherever and however introduced into the circulation, always makes for the central motor ganglia, combined with the probability that tetanus antitoxin, unless directly introduced into nerve tissues (whether given subcutaneously or intravenously), never reaches these ganglia at all, or else in insufficient amount to be of value, gives us our most important concepts for a rational treatment of the disease. Of almost equal importance with these is a thorough recognition of the fact that antitoxin ascends the axis cylinder more slowly than the toxin, and that, in order to be efficacious, it must be introduced at a higher level than the toxin and before a stable union of nerve and poison has occurred."

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[20] Jour. of the Am. Med. Asso., July 21, 1906, p. 189.

[21] Ann. of Surg., Sept., 1906, vol. xliv, no. 3, p. 321.

[22] Surg., Gynec. and Obstet., Aug., 1906, p. 325.

He summarizes the treatment as follows: "1. Immediate intravenous and subcutaneous injections to neutralize circulating toxin.

"2. Immunizing or neutralizing injections at the highest level which the severity of the symptoms appears to justify; directly into the cord, as advocated by Rogers, or into the higher motor nerves, such as the hypoglossal and spinal accessory, as suggested by myself.

"3. Peripheral intraneural injections as near to the cord as possible. Where amputation is not indicated or allowed, there is positive experimental evidence that nerve section will isolate the toxins in the limb.

"4. Lymphatic absorption will be diminished by the application of Bier's principle of passive hyperemia or by circumcision of the limb.

"5. Parenchymatous injections, especially into the muscles, may be found of distinct value in addition to subcutaneous and intravenous injections.

"6. If possible, the local focus should be thoroughly eradicated.

"7. We have no right to neglect symptomatic treatment.

"8. Animal experimentation gives us no ground for hoping that any treatment whatever can be successful when once the disease has progressed beyond a certain stage."

THE TREATMENT OF TETANUS BY MAGNESIUM SULPHATE.

Dr. Joseph A. Blake [23] has had some experience in the use of magnesium sulphate in tetanus. Dr. S. J. Meltzer discovered the inhibiting effect of this salt upon nerve tissue in transmitting afferent and efferent impulses. The dose of magnesium sulphate that is necessary to use is at present indefinite. Meltzer considered that 1 cc. of a 25% solution of magnesium sulphate to every 25 pounds body weight was sufficient when injected into the spinal canal. Blake has found marked variation in the effect of the drug, age and sex apparently having a direct bearing upon its action. The drug is apparently most useful in controlling the convulsions. In one case of general miliary tuberculosis resembling tetanus it was repeated nine times in eight days without producing unpleasant symptoms. Dr. Blake concludes as follows: "My impression of the drug is that although we cannot be certain of its effect, yet it is reasonably safe and offers us a means of modifying the convulsions and relieving pain in a way no other drug has approached. For these reasons alone it is worthy of a more extended trial. It is not a specific treatment, but it produces anesthesia, which may be taken advantage of for intraneural or other injections of tetanus antitoxin and for revising the site of the infection."

ON SPONTANEOUS CURE OF CANCER.

Gaylord and Clowes,[24] whose work on this subject has been long continued, have contributed an interesting paper in which they summarize the data in reference to the spontaneous recovery of cases of cancer in human beings as well as the spontaneous cure of mice affected with carcinoma. The paper is a long one and may be referred to for the literature of spontaneous cure of cancer in human beings. The conclusions that the writers reach are as follows:

"1. Spontaneous cure of cancer in the experimentally inoculated mice occurs, in our experience, in about 23% of the animals.

"2. The chances of spontaneous cure are inversely proportional to the size of the tumor. The frequency of the occurrence and its distribution in animals suggests that it may be more frequent in human beings than is generally supposed.

"3. The occurrence of spontaneous recoveries from cancer, indicating the existence of immune forces capable of terminating the disease, demonstrates that cancer is not necessarily incurable, and should serve as an additional stimulus to research directed toward the discovery of a serum-therapeutic treatment."

BENNETT'S FRACTURE.

Raymond Russ [25] has observed cases of this fracture in some detail. Edward H. Bennett,[26] Professor of Surgery in Trinity College, Dublin, called attention to the fracture of the base of the first metacarpal bone in 1881. He dubbed this fracture "Stave of the Thumb." The fracture is apparently more common than is generally recognized. Russ reports five fractures of the left first metacarpal, and three of the right first metacarpal. Many of the cases were the result of a blow with the clenched fist. In many instances the condition passed by as a sprain, and an x-ray examination alone revealed the condition. Russ considers that a careful examination should be made by the x-ray, that the fracture should be reduced completely and held in position by a carefully applied coaptation and traction splint applied to the thumb.

THE LOWER EXTREMITY OF THE ULNA AS A FACTOR IN COLLES' FRACTURE.

D. M. Totman [27] considers that Moore's statement that the care of the lower end of the ulna is of great importance in the successful treatment of Colles' fracture, is a subject that is often overlooked. He advocates the use of a small roller on the outer and anterior surface of the wrist, held in place by adhesive plaster.

TOTAL LUXATION OF THE SPINE.

Steinmann [28] reports 19 cases of total displacement of the cervical vertebræ between the second and seventh, without serious injury to the cord. He also reports a case personally observed. In only one of the 20 cases did partial paralysis persist. In four the paralysis was relieved when the displacement was reduced. Attempts at reduction were successful in 12 cases. In 7 no attempt at reduction of the displaced vertebræ was made. In some cases traction was used for some time and then the spine was supported by a brace. Steinmann recognizes that it is impossible to distinguish between a fracture and a dislocation and states that they may exist together. He advises that extension and counter-extension should be used and this combined with manipulation will generally reduce the displacement. He does not advise as a routine measure operation.

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[23] Ann. of Surg., Sept., 1906, p. 367.

[24] Surg., Gynec. and Obstet., June, 1906, p. 633.

[25] Jour. Am. Med. Asso., June 16, 1906, p. 1824.

[26] Dublin Jour. Med. Sci., vol. lxxiii, p. 72; Brit. Med. Jour., Aug. 1, 1885, p. 200; *Ibid.*, July, 1886, p. 13.

[27] Buffalo Med. Jour., July, 1906.

[28] Arch. fur klin. Chir., Langenbeck's, Berlin, Bd. lxxviii, no. 4.

DISLOCATION OF THE OUTER END OF THE CLAVICLE.

Charles L. Scudder[29] reports two cases of this injury with the results of three experiments on the cadaver. He considers that in some cases it is impossible to maintain the reduction because of the rupture of the coracoclavicular ligaments. He formulates the treatment of a specific case as follows: "If the dislocation is one of moderate degree, it should be treated by simple retentive apparatus. If the dislocation is extreme, in which case it is probable that the coracoclavicular ligaments are torn, a suture of the parts is indicated. If the retentive apparatus does not hold cases of the first class, then suture should be employed. Various methods of suture have been used, — by wire, by silk and by absorbable material. Different forms of pin have been employed. The placing of the suture seems to be of some importance,in view of my own experience with one of the cases recorded. An efficient method of suture may be employed to supplement the usual joint suture. In order to secure a firmer hold on the outer end of the clavicle a suture should be placed so as to make traction on the clavicle from below in the direction of the coraco-acromial ligament. The suture should be passed through the clavicle and the coraco-acromial ligament."

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Reports of Societies.

TWENTY-EIGHTH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Held at Niagara Falls, May 31, June 1 and 2, 1906.

(Concluded from No. 17, p. 480.)

Second Day, Friday, June 1. Session at 10 a.m.

TRACHEAL STENOSES.

Dr. William K. Simpson, of New York City, enumerated as the extrinsic causes of stenosis, struma, pressure by tumors, glandular hypertrophies, emphysema, pressure, aneurisms, phlegmonous inflammations of cellular tissue, extension of bone disease, trauma; intrinsic causes were classified as cicatrices and adhesions, morbid growths and foreign bodies, inhalation of irritants and ingestion of corrosive chemicals, and inflammations leading to thickening of the tracheal walls. The author then discusses the mode of action of these various causes in detail, and enumerated the symptoms caused thereby. The especial symptom was the stridulous breathing. Tracheal dyspnea has some characteristics peculiar to itself. It is inspiratory in character, the inspiration being longer than expiration, may be labored, noisy or wheezing, is at times audible for a considerable distance but has not the peculiar brassy, croupy, stridulous sound of laryngeal dyspnea. Diagnosis could be made by the laryngeal mirror aided in obscure cases by the x-ray. Operation revealed a greater extent of stenosis than would be indicated by the mirror image. Treatment depended on the recognition of the cause. Outside of specific cases, it was entirely surgical. We had at our command tracheotomy, tracheal fissure, with ex-section of the stricture tissue, resection of the portion of the trachea involved, and finally, the various forms of dilatation. Dr. Simpson showed various models of cannulæ employed for the last-named purpose.

FOREIGN BODIES AND TRACHEOSCOPY.

Dr. A. Coolidge, Jr., of Boston, spoke of the behavior of foreign bodies drawn into the upper air passages, and said that the important question after considering the nature of the body, its probable position and the patient's general condition was, what is the danger of leaving it alone? Next, if an attempt at removal is made, is the patient's chance improved or not, and finally, what operation shall be done? Various statistics were quoted, but the proper methods of treatment adopted during recent years, render an entirely new consideration of all the foregoing points necessary. The author briefly traced the history of tracheoscopy and bronchoscopy, and discussed the physical principles involved. In the older methods, the surgeon worked in the dark; with modern instruments he can see just what he is doing, and inspection of the trachea and bronchi becomes just as definite a procedure as inspection of other bodily areas requiring special instruments. Modern essentials are a proper tube, a good illumination, and an instrument for extraction of the foreign body which can be easily and safely used through the tube. The author submitted various instruments, and spoke of certain modifications in their employment, which had proven of service to him. In closing, he reported three cases in addition to the five previously reported to the association. The foreign bodies were respectively a prune stone, shingle nail and hook. All were successfully removed.

HYSTERICAL MUTISM.

A general description of this condition was given by Dr. G. Hudson Makuen, of Philadelphia. He also reported the case of a young man of twenty-two years, who was struck across the bridge of the nose, and right orbit, by a live trolley wire. He was dazed for a few hours but apparently not severely injured. The power of speech, however, was in complete abeyance. When coming under the author's observation, some time later, several minor faults of the upper air passages were removed without any effect on the loss of speech. There was marked anesthesia in the larynx. The patient could not hold the vocal cords in approximation sufficiently to make them vibrate, and produce sound; he could not produce either resonant or whispered sounds, and did not seem to know how to begin to try, lacking the mental conception of articulative movements, as well as that of movements for vocalization. Instruction was carried on for some weeks with the result of the acquirement of a few short partly whispered words, but the patient soon forgot what he had apparently acquired. There was a "psychologic lesion" in the center for motor speech. All sorts of laryngeal stimulation were tried for some time. During the fourth month of his illness, he had two typical hysterical seizures, and during the second one, which was very severe, and happened at night, his silence of fifteen months was broken though his first words were uttered in a state of unconsciousness. He was gradually awakened, and talked constantly. From that time on, progress was satisfactory, though for a considerable period, he was troubled with various nervous symptoms.

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[29] Jour. Am. Med. Asso., July 7, 1906, p. 19.

PAPILLOMA OF THE LARYNX FROM INHALING FLAMES

The history of this case was presented by Dr. A. B. Thrasher, of Cincinnati, whose patient, a man, had been injured two months before coming under observation by an explosion of gas in the cellar of a drug store. He had had a severe inflammation of the upper air tract from which he had made a slow recovery, and had gradually become aphonic. Examination revealed, in addition to a general redness of the parts, several granulomatous looking masses, springing from the ventricles, and almost obstructing the entire cords. Other similar bodies were seen below the cords, during forced inspiration. Examination of a fragment removed revealed a papillomatous neoplasm with some admixture of granulation tissue. The masses were removed a few at a time, bleeding following each seance being rather profuse. Silver nitrate 10% was applied to the base of each nodule. A few months later the larynx was sufficiently cleared to allow of a view of both cords, and his vioice became considerably stronger. Still later, the voice became normal, though no later view of the region was had. The author noted that so far as this one case went, it lent favor to the theory of the inflammatory origin of laryngeal papillomata.

SCLEROMA OF THE LARYNX.

Dr. Emil Mayer, of New York City, reported one personal case, his patient being a Russian Pole girl, aged sixteen years. While crossing the ocean three years previously, she took cold and became hoarse. Hoarseness had remained constant. Masses of crusts were expelled together with much secretion from the nose and naso-pharynx, and there had been an increasing dyspnea. Odor was absent, and the general health had continued good. Some of the crusts were removed, and sent to the pathologist who reported that the condition was scleroma. Dr. Mayer reviewed the literature of the subject, epitomizing the statements of various authors. Dr. Mayer stated that the prognosis as to recovery was bad, though the general health might not be impaired, save from symptoms as the the varying stenosis would occasion. External conditions have been benefited by the x-ray. In the larynx, removal of the crusts is often necessary. The pressure of an intubation tube both before and after tracheotomy has been useful, as has also the Schroetter tube. The lesion was to be regarded as a chronic incurable one, and to a certain degree contagious. The writer deemed it most advisable that the sanitary authorities take action now with view to a prevention of further cases, inasmuch as present cases are few and far between, and the problem presents itself in a comparatively simple form. Quarantine officers should not allow cases of scleroma to land.

TWO CASES OF BONE IMPACTED IN THE LARYNX.

Dr. John M. Ingersoll, of Cleveland, reported the cases. Case I was that of a man with progressive inspiratory dyspnea leading up to cyanosis, and necessitating tracheotomy. The following day, examination showed complete abductor paralysis of the larynx, a view below the cords being impossible. Above the cords, the organ was inflamed, and two ulcerations were made out. Iodide of potash was given, but had no effect on the glottic picture. Patient died of septic pneumonia one month later. Autopsy revealed a condition not at all suspected. In addition to the usual septic conditions, a piece of bone irregularly triangular, about five cm. long and two cm. wide, curved on the flat, was found in a cavity on the posterior wall of the larynx, access thereto being through an ulcer about two cm. in diameter. The gullet was intact, and its mucosa normal. The bone had evidently fallen into the larynx during a meal and had worked its way around through the posterior wall of the larynx, into the position in which it was found on autopsy. The man gave no history of any such accident. It had evidently pressed on the recurrent nerves, and thus led to the paralysis. A second case was also reported with similar initial symptoms, and was supposed to be due to syphilis. Tracheotomy was done to relieve the dyspnea. All that could be seen was a grayish rough surface below the cords. Finally, the larynx was split and a piece of bone was found imbedded in the right side of the trachea, just below the larynx. Relief was immediate and complete. In this case also the man had no recollection of ever having swallowed the offending material.

FIBROMA OF THE LARYNX IN A CHILD OF FIVE YEARS; APPARENT CURE; RECURRENCE AS A PAPILLOMA; LARYNGOFISSURE; CURE.

Dr. Thomas J. Harris, of New York, gave the later history of a case which was originally reported to the association one year ago. The sequence of later events is indicated in the title. The stenosis returned in about six months after she had seemed cured, and appeared to be granulomatous in nature, but the microscope showed it to be papillomatous. A tube was then worn for about six months longer since which time the larynx has been free. The voice, however, is gone. A fair view of the larynx can now be obtained with the short Killian tube, and while there is no evidence of any neoplasm, there is very little cord remaining.

Third Day, Saturday, June 2. Closing Session, 10 a.m.

SARCOMA OF THE NASO-PHARYNX: TREATMENT BY INJECTIONS OF ADRENALIN.

Dr. J. E. Rhodes, of Chicago, reported the case of a married woman of twenty-two years, with the history of a growth commencing in the throat at the age of ten. When seen by the author, there was a mass in the naso-pharynx completely obstructing the choanæ, severe pain, profuse discharge, and all the features of a chronic sepsis. Palpation showed an attachment to the naso-pharyngeal wall, and the extension of the mass down nearly to the edge of the soft palate It was firm though not hard, did not bleed easily, and no ulceration could be made out. Microscopical examination of a fragment showed the tumor to be a spindle-celled sarcoma, highly cellular with many lymphoid cells. A consideration of all the features in the case led to a decision against operation. Consequently Rhodes determined to inject adrenalin through the nasal channels through a long needle, using the following solution; adrenalin, gm. 0.12; acid boric 0.60; chloretone, 0.025; water 15.00. Of this ten minims equalled five milligrams. of adrenalin chloride. This amount was injected every few days, and a solution of 1-1000 adrenalin was applied to the surface. The symptoms were considerably relieved by this plan of treatment, but the patient died in about two months from exhaustion. The author referred to other cases similarly treated by others, and believed that the method deserved a further trial. Reference was also made to the physiological effect of the remedy. Caution was suggested as requisite in this special application of it. It has been found by animal experimentation that arteriosclerosis sometimes follows its prolonged administration.

THE REMOVAL OF ADENOID VEGETATIONS THROUGH THE NASAL PASSAGES BY A NEW METHOD.

Dr. Otto T. Freer, of Chicago, finds objections to the various forms of curette and ring-knife now so generally employed, claiming that they do not afford clean and sufficient removal of the offending masses. If the latter are at all tough, the blade is apt to slip over them. Moreover, the ramifications of the naso-pharyngeal cavity are such that no ring-knife or similarly constructed instrument will reach them. Hence, Freer prefers to operate through the nasal fossæ, and has devised for this purpose a slender forceps with a smoothly rounded beak. It is of the general model originally devised by Ingals for the removal of bone in the nose. At first sight, it would seem as if the intrument wass too large to pass through the nose, but experience has shown that there is no difficulty in this respect. The author uses chloroform anesthesia, combined with cocaine in 10% solution, and has had no difficulty with this combination.

MOUTH BREATHING.

Dr. William Lincoln, of Cleveland, read a short paper with this title, and illustrated his remarks with lantern slides. He called attention to the fact that many children remained mouth breathers after adenoids and enlarged tonsils had been removed. But the patients have often suffered so great a distortion of the osseous framework of the face, particularly of the upper and lower maxillæ, and their arches that no amount of work by the rhinologist alone will relieve the difficulties from which they suffer. The dentist is the one who can help the sufferer out. Under normal conditions the mouth is closed, and the teeth and lips properly apposited by the normal tonicity of the facial and buccal muscles, but when the latter are weakened by altered bone conformation, the jaws are closed and held together only by conscious effort. During sleep, the jaws drop apart. Sometimes the posterior molars come together in such a way that it is impossible for the incisors to meet. Thus, the jaws are locked. The determination of cause and effect in the study of these deformities of the facial bones and lymphoid hypertrophies is not easy. Either condition may be provocative of the other. Adenoids and tonsils may weaken the growing child so that dentition is delayed and teeth decay started, and the whole framework of the face and whole body retarded and weakened in texture. Locally it seems probable that if the lymphoid masses are large, they may by slight but constant pressure change to some extent the correct relation of the upper and lower maxillæ. On the other hand, the normal width and shape of the maxillary arches being disturbed, there must follow septal deformities, turbinal distortion and enlargements, and, in consequence, encroachments on the lumen of the nares, rendering nasal breathing impossible, or very difficult, whereby in turn the naso-pharynx suffers, and adenoids ensue. The slides shown illustrated the changes in jaw conformation produced by proper dental prosthesis.

MALIGNANT DISEASE OF THE TONGUE.

Two cases were reported by Dr. J. H. Bryan, of Washington, D. C. Case I was that of a man of sixty years with an indurated ulcer on the right border of the tongue, at its posterior third. Strong irritants had given it an inflamed appearance. No glands were found. Diagnosis, malignancy. The patient was operated on by Mr. Butlin, of London, who, after doing a preliminary laryngotomy, excised the whole right half of the tongue. Three weeks later, a complete dissection was made of all the glands of the neck. Nothing was found in them suggestive of cancer, but the mass removed from the tongue was found to be a squamous-celled carcinoma. Remained well for about seven months, when a swelling appeared in the opposite side of the neck. This was removed, but the next day after the operation, the patient developed a hemiplegia and he died of a pneumonia, forty-eight hours after operation. Case II was that of a man of seventy years, who had for some time suffered from dysphagia without apparent cause. Later there developed a mass at the base of the tongue, projecting out of the larynx, and suggestive of an exaggerated degree of edema of the epiglottis. There was no pain. The growth bled easily on examination. There was a small glandular enlargement on the left side of the neck at about the bifurcation of the common carotid artery. Examination of a fragment of the growth revealed it to be a surface epithelioma without the formation of pearls. The Kocher operation was performed, it being shown that attachment was to the tongue, and not to the epiglottis. Recovery was slow, but uninterrupted. Eight months later the patient was doing fairly well, though troubled somewhat with difficult articulation, and accumulation of fluids in the mouth.

EXAMINATION OF THE THROAT IN CHRONIC SYSTEMIC INFECTIONS.

This paper was presented by Dr. J. J. Goodale, of Boston. He referred to frequent consultations he had had with orthopedists, in regard to the relation of throat conditions to chronic arthritis. The question was constantly arising, — Did the throat condition account for enlarged cervical glands, and was it the point of entrance for the joint infections? The paper was confined to the consideration of tuberculous lymph nodes and infectious arthritis. Experience has shown that the removal of a septic focus has often relieved the joint symptoms. Ten cases were reported, showing that tuberculous cervical adenitis may exist in association with the presence of tubercle bacilli in enlarged tonsils with or without visible change in the latter, and is not necessarily affected, by tonsillar removal; and second, that a form of cervical adenitis exists accompanied by distinct enlargement and subacute or chronic inflammation of the tonsils, and disappears after their incision. In the first place it appears reasonable to assume that a penetration of bacilli takes place through the tonsils into the glands, and in the second that an absorption of irritating material has occurred, being generated in the tonsils, and conveyed to the glands. Removal of the focus of toxin production is naturally followed by immediate relief. The author then discussed the matter of the modes of penetration of such irritating and infecting material through the tonsils, maintaining that it would be favored by an increase in the size and number of the intercellular spaces of the lacunar epithelium and the retention of crypt contents. Now in regard to chronic arthritis it may be true that this condition is due to a specific organism, and it is certainly likely, nay more, probable, that such organism is constantly present in the mouth, and that certain patients are peculiarly susceptible to it. Given this systematic predisposition, local vulnerability would become of importance in determining an attack. We are therefore compelled to seek for the place of diminished resistance. This may be in the throat, and in all such instances, the tonsils should be carefully examined. The arthritic individual predisposed to rheumatic infection finds in certain remedies, diet, etc., means for resisting infection, or in controlling bacterial development, after entrance thereof. The examination of many cases of infectious arthritis has shown pathological alterations in the tonsils, characterized in general by the retention of lacunar detritus with or without enlargement of the tonsil. Hence, if we can eliminate in these joint cases other portals of infection, it is logical to thoroughly extirpate the tonsils. We shall thus replace a tissue of diminished resistance by a stout barrier of compact structure without nook or recess to harbor a pathogenic parasite.

ETIOLOGY OF HYPERKERATOSIS OF THE TONSILS.

Dr. George B. Wood, of Philadelphia, presented a paper on this subject. He took strong issue with those writers who have ascribed the disease to the effect of a specific infection, the leptothrix, declaring that neither this, nor any other micro-organism stood in such causal relationship. He maintained that it would be as rational to hold the dirt and grime of a miner's hand responsible for the production of the horny layer of the skin, as to believe that such a saprophyte as the leptothrix is responsible for what is really a calloused tonsil. There is, it is true, a rather acute infection of the throat in which this organism is probably the exciting cause, but such infection is not limited to the tonsillar tissues, and may occur in any portion of the body in which vital resistance has been lowered, and to which the organisms have obtained access. True hyperkeratosis is limited to lymphoid tissue portions of the throat. The true explanation of the condition under discussion is found in the behavior of the epithelium lining, the tonsillar crypts. These are dilated and filled with a horny mass which emerges at various points into the epithelium. The latter is in a state of active growth which results in the formation of the keratoid plugs. Other changes may occur, but this change in the epithelium of the crypts is the characteristic pathologic feature of hyperkeratosis. The author is of the opinion that the cryptal epithelium is a primogenial source of lymphocytes. At the bottom of the whole process is a decreased functional activity of the tonsil while a portion of the cryptal epithelium still possesses its physiologic tendency toward growth.

CASES OF SARCOMA.

Dr. Thomas Hubbard, of Toledo, presented the reports of two cases. The first was that of sarcoma developing in fibromyxoma of the epitonsillar space. His patient was a man of forty years, with a mass ovoid in shape, and about two and one-half inches in longest diameter, situated just above the left tonsil, and in the substance of the soft palate. Nodules gave it an irregular surface, and these nodules appeared very vascular. The mass was enucleated under Schleich infiltration anesthesia. No return ten months after operation; microscopical diagnosis, mixed-celled sarcoma. The second case was sarcoma of the neck, following extirpation of the tonsil. Patient was a man of thirty years, whose tonsil was removed, following enlargement of the cervical glands, the whole picture being suggestive of malignancy. The glands did not subside but gave evidence of harboring some septic process, and finally the whole glandular mass was excised. Microscope revealed a small, round-celled lympho-sarcoma of a compound lymph gland. The patient lived only two months and before death presented the usual symptoms following involvement of the vagus and its branches.

MIXED TUMOR OF THE SOFT PALATE.

Dr. T. H. Halsted, Syracuse, N. Y., reported the case of a man of fifty-five years complaining of recent sore throat and hoarseness. He had had similar attacks for fifteen years or more. Examination showed an appearance about the left tonsil suggestive of quinsy with superficial inflammation of all the surrounding parts, but the swollen area was very hard to the feel. The superficial inflammation quickly cleared up leaving the appearance of an enormously enlarged tonsil buried between the pillars, and almost entirely covered by them. The swelling was greatest in the soft palate above the arch, and was pushing the posterior pillars backward and largely obstructing the left side of the naso-pharynx, extending up to the Eustachian orifice. The mass was of stone-like hardness and had a nodular surface. There were no enlarged glands, cervical swelling or history of bleeding. A diagnosis of malignant growth was made. Later, there was some bleeding from the throat, but no change in appearance. The mass was removed under local anesthesia without difficulty or special incident. The tumor was of oval shape, 7 x 4 x 5 cm. in measurement, and contained several small cysts. Recovery was rapid. At the end of seven months, there had been no recurrence. Microscopical diagnosis: a cylindroma evidently originating in connection with the parotid gland (possibly an aberrant portion) or in connection with mucous glands.

During the sessions of the Congress the following papers were read by title: "Remarks on Sub-Mucous Resection of the Nasal Septum and also on the Merits of Oblique Incisions in correcting Septal Deviations," by Thomas R. French, M.D., Brooklyn. "The Treatment of Cancer of the Larynx by the Subcutaneous Injection of Pancreatic Extract (Trypsin-Fairchild)," by Clarence C. Rice, M.D., New York City. "Hysterical Aphonia and its Correction by the Use of the Falsetto Voice," by D. Braden Kyle, M.D., Philadelphia.

The following Acting Fellows were elected, D. Crosby Greene, Jr., M.D., Boston, thesis, "The Lymphatic Drainage of the Larynx." William L. Ballenger, M.D., Chicago, thesis, "The Clinical Anatomy of the Tonsil." Norval H. Pierce, M.D., Chicago, thesis, "Laryngeal Phlegmon." John R. Winslow, M.D., Baltimore, thesis, "What is the Present Status of the Operative Treatment of Deviation of the Nasal Septum? A critical review based on literature, and especially a personal experience of 121 cases operated on by various methods."

Officers for the ensuing year were elected as follows: President, A. W. DeRoaldes, M.D., New Orleans, La.; first vice-president, G. Hudson Makuen, M.D., Philadelphia, Pa.; second vice-president, Dr. A. B. Thrasher, M.D., Cincinnati, Ohio; secretary and treasurer, James E. Newcomb, M.D., 118 West 69th St., New York City; librarian, J. H. Bryan, M.D., Washington, D. C. Member of council to serve for four years, J. W. Gleitsmann, M.D., New York City. The meeting for 1907 will be held at Washington, D. C., in connection with the Triennial Congress of that year.

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Although the California State law requiring all school children to be vaccinated as a qualification for admission has been neglected in many parts of the state, it has been rigidly enforced in Los Angeles during the past month. From 500 to 1,100 children have been vaccinated daily, free of charge. Unfortunately, more than 1,000 primary vaccinations have failed as a result of the hot weather and the additional exposure of the virus to high temperature en route from the East. — *Medical Record.*

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THE DANGER OF LEAD SERVICE PIPES.

In this issue of the Journal we publish the report of two cases of lead poisoning, which again draws attention to this avoidable public danger. It is altogether desirable that such cases should be reported and the source of the poisoning ascertained if we are to approach intelligently the problem of prevention. The matter is taken up in some detail in the last report of the Massachusetts State Board of Health, and the results of the researches made by this board are both interesting and important.

The danger, as is well known, arises essentially from the use of water conveyed through lead service pipes. The pipe itself, however, would not contaminate the water were it not for the carbonic acid which is present in varying quantities in different waters. The presence of this carbonic acid is the essential agent in the action of water upon lead pipe. It has been found that ordinarily ground waters contain a larger amount of carbonic acid than surface waters, as shown by the fact that the largest number of cases of lead poisoning investigated by the board has occurred in those localities where ground water has been the source of supply. On the other hand, surface waters have been found to contain amounts of lead inimical to health, but this is the exception rather than the rule.

It is, however, not a safe principle to assume that lead service pipes are wholly free from danger when used with surface water, as has recently been demonstrated in the town of Norwood, which derives its water supply from a pond. When these service pipes were examined in 1898, they did not contain an excessive amount of lead. Examined again in 1905, a much greater proportion was found than before, and sufficient to cause lead poisoning. It was evident from this and further analyses that lead was being dissolved from the pipes in large quantities, and it was further evident that the danger was likely to be an increasing one. These pipes will in time be replaced by others of different material.

In view of this and other facts, it is somewhat extraordinary that many cities and towns are continuing to use lead pipes in spite of the fact that pipes of other material have been shown to be serviceable and free from danger. The report presents an extremely interesting set of facts derived from the water departments of cities and towns as to the extent lead is still used for service pipes as compared with other material. This table shows that lead has in great measure been given up, though by no means universally. Attention is drawn to the fact that other varieties of pipe offer certain disadvantages. Galvanized iron, for example, has proved unsatisfactory, since the water takes up sufficient zinc and iron to make it unfit for domestic use. Galvanized iron pipes, also, are troublesome on account of rust, some of them, in fact, having become filled with rust. In a few instances such pipes have been replaced again by lead on account of this fact. In general, it appears that galvanized iron pipes are unsatisfactory. Cement-lined pipes have been used in general with satisfaction, but even these in some instances have given some trouble on account of rust. In three cities, Chelsea, Everett and Fall River, all the service pipes are still of lead, and in twenty-three other cities and towns chiefly of lead; in twenty-eight cities and towns lead or lead-lined pipes are being almost exclusively used for renewing service pipes.

In general, it appears that plain wrought iron is unsatisfactory because of rusting; that galvanized iron pipes are also unsatisfactory from the same cause, and that cement-lined pipes are, on the whole, the most satisfactory substitute yet found for lead. In only eight places is there a report of serious trouble in pipes of this material. It is evident from the foregoing that the problem has not yet reached a definite solution. Lead is a useful material on account of its permanence and the fact that it does not rust. The danger from poisoning, however, has been shown to be too definite to permit us to be satisfied with pipes made of this material for our water supplies. It is evident that a wholly satisfactory substitute must be found, and it is not to be doubted that such a substitute will be found in the near future to satisfy all requirements. In the meantime, it is very desirable to publish the exact facts, as the Board of Health has done in this report.

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DR. SANGRADO REDIVIVUS.

Gil Blas, upon a time in his interesting career when he was at his wits' end for a means to procure nourishment and the comforts of life, luckily became assistant to the great Dr. Sangrado, and found himself without more ado a qualified physician. For the whole armamentarium of his chief consisted of the lancet and hot water, with the employment of which he quickly became familiar. The latter continues to this day an absolute therapeutic essential. The former, with the cup and the leech, have for many decades past fallen into desuetude. Why? Because blood-letting was, in its palmy days, a century ago, practised absolutely without discrimination. Every unfortunate who contracted no matter what illness was bled, often to a degree which appears to our notions nothing short of ghastly. And not only the sick, but the well were bled freely at regular intervals, so that the lancet marks on hands and feet were more in evidence than those of vaccination to-day. A reaction from such methods was of course inevitable; the pendulum swung to the other and an equally irrational extreme, so that physicians came almost never to abstract blood.

Phlebotomy is oftentimes very appropriate and sometimes absolutely essential to save life. But it must not be done haphazard, in the manner which brought its practice into disrepute; it must be done scientifically, sensibly, and only when pathological conditions call for it. Upon what principles? Treat not the disease but the man; judge of the propriety, the amount and the necessity of repetition of blood-letting, by the individual symptoms exhibited in each case, and not by the nomenclature; observe also the natural constitution of the patient — withholding the lancet in the extremes of life, youth and old age; do not bleed in dog-days and in moist warm weather. There surely can be nothing more scientific nor up-to-date than these statements; they were formulated by a very good physician named Galen who practised in Rome, some eighteen hundred years ago. Sydenham refrained when the blood was weak in character, in the aged, and those who were invalid for a long time; he would not bleed in gout. He would bleed athletes and those of "a sanguine temperament." In pleurisy this minor operation was his sheet anchor; and no doubt if it were employed to-day, empyema and perhaps tuberculosis would be less frequent sequels. Small would bleed when there is excessive vascular tension; when it is desired to obtain the benefit of its physiological action upon the various tissues and organs; when good may result from removing a definite amount of blood and with it toxic material. Raymond finds bleeding the best method for mechanical disintoxication in all severe infections. Watson would do phlebotomy for sudden engorgement and distention of the vessels that carry "black blood of the systemic veins, of the pulmonary arteries and especially of the right chambers of the heart." The right heart can again contract as soon as the tension upon it is lessened, the clogged lung is set free, the functions of the oppressed brain are eased, and circulatory balance is restored.

Such are the principles which should guide in venesection. Governed by them the scientific and rational physician may use the lancet in cardiac dilatation, venous engorgements, arteriosclerosis and emphysema when characterized by dyspnea, lividity and high tension, pulmonary hyperemia and edema (pneumonia), pleurisy, cerebral congestions and hemorrhage, hepatic congestions, uremia, suppressed menses, hyperpyrexias and acute infections.

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THE PREVALENCE OF TYPHOID FEVER.

The fall season has brought its usual harvest of typhoid fever. Both the Massachusetts General and the Boston City hospitals show a very large proportion of patients suffering from this disease. Out of about two hundred and seventy medical patients at the City Hospital, at least 50% during September and October have been cases of typhoid fever. It is an interesting and at the same time discouraging fact that the disease is prevalent in unusual degree throughout the state, and in most varying localities. Since last July it is reported that about one hundred cities and towns have been visited by the disease, and very recently it was estimated that there were approximately one thousand cases in the state. Many cities and towns about Boston have reported outbreaks, but cases are also reported from more distant places, as, for example, North Adams, Northampton, Provincetown, Springfield and Westfield.

Extremists have been saying for some years that every case of typhoid fever is preventable, and, if not prevented, is a reproach to the community in which it occurs. This is surely going too far. The growth of cities, greater complexity of living, and the inherent carelessness of man are matters which cannot be wholly eliminated and for which no board of health or city government can be held wholly responsible. Sporadic cases of typhoid, leading up to minor epidemics, are extremely likely to occur for many years to come. This does not, however, in the least imply that every possible effort should not be made in every instance to trace the source of the infection. If this is faithfully done and by competent persons, it is not to be questioned that much information of value from a prophylactic standpoint will in time be accumulated. The State Board of Health has been particularly active this fall in investigating many of the outbreaks which have occurred, this work having been largely done by Dr. George B. Magrath. Dr. Magrath's investigations have shown that our skepticism regarding purity of milk is not misplaced. In every series of cases which he investigated he found that milk was the agent through which the disease was conveyed. The epidemics in Wellesley and Needham were traced to a single farm, and the disease has ceased to spread since this fact became known and proper precautions were taken. It is said that the Lynn outbreak was also traced to a single source of milk supply.

Fortunately, the disease has this year not appeared in very virulent form, and so far as we are aware, none of the local epidemics have spread to an alarming degree, which speaks well for the active intervention of those responsible for the public health.

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MEDICAL NOTES.

A Department of Experimental Surgery. It is stated that the University of Pennsylvania has established a department of experimental surgery under the direction of Dr. J. E. Sweet. Dr. Sweet was at one time connected with the Laboratory of Hygiene and more recently with the Rockefeller Institute.

Portrait of Dr. Paul F. Munde. A portrait of the late Dr. Paul F. Munde was presented to the New York Academy of Medicine on Oct. 18, Dr. A. Jacobi making the presentation address. Mrs. Munde, who gave the portrait, was also the artist.

The New French Ministry. — It is a fact of interest that journalists and physicians together constitute almost a majority in the Chamber of Deputies in Paris. In the English Parliament lawyers are far more numerous than the members of any other profession, whereas in France journalists are in the majority and physicians are frequent.

A Centenarian. — Robert H. Sprague, a negro living in Northampton, Va., has recently died at the reputed age of one hundred and fourteen years. His age is said to be authenticated by documentary evidence. He was the father of twenty-five children and had been several times sold as a slave.

Open-Air Treatment of Tuberculosis in Washington. — The new municipal hospital in Washington has made extensive provision for the open-air treatment of tuberculosis. A roof garden ward has been provided, occupying the entire top of the building, open on three sides and protected on the north by a brick wall amply supplied with windows. On the open side it is designed to have weather-proof curtains. The ward is expected to accommodate sixty patients without crowding.

Large Bequests for Charities. — By the death of the widow of "Sam" Lewis, the notorious money lender of London, who died in 1901, approximately $15,000,000 has been released for charitable purposes. By Lewis's will his fortune was left to his widow in trust for life, with the exception of $5,000,000 given her outright. Through her death King's Hospital Fund receives $1,250,000 outright, and about $5,000,000 of the residue of the estate; $7,000,000 is to be devoted to establishing homes for the poor, $750,000 for the relief of poor Jews and for hospitals and colleges, and $875,000 to other hospitals. It is reported that Lewis's motto was "I lend to the Lord and give to the poor," a sentiment which he has apparently justified by his bequests.

A Fund for Psychical Research. — It is reported that an endowment sufficient to begin work has been given the newly formed American Institute for Scientific Research by six New York men. It will be remembered that this society was formed after the death of Dr. Richard Hodgson, and is, therefore, a continuation of the Society of Psychical Research of which he was the leading spirit for many years. The new society is under the direction of Prof. James H. Hyslop and will work in co-operation with the British Society of Psychical Research, although having no official connection with that organization.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Oct. 31, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 32, scarlatina 18, typhoid fever 39, measles 1, tuberculosis 21, smallpox 0.

The death-rate of the reported deaths for the week ending Oct. 31, 1906, was 19.48.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Oct. 27, 1906, is 204, against 182 the corresponding week last year, showing an increase of 22 deaths, and making the death-rate for the week 17.67. Of this number 95 were males and 109 were females; 199 were white and 5 colored; 137 were born in the United States, 64 in foreign countries and 3 unknown; 44 were of American parentage, 138 of foreign parentage and 22 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 43 cases and 0 deaths; scarlatina, 26 cases and 0 deaths; typhoid fever, 38 cases and 5 deaths; measles, 2 cases and 0 deaths; tuberculosis, 40 cases and 18 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 28, whooping cough 0, heart disease 11, bronchitis 3 and marasmus 7. There were 19 deaths from violent causes. The number of children who died under one year was 36; the number under five years 47. The number of persons who died over sixty years of age was 57. The deaths in public institutions were 66.

There was 2 cases and 1 death reported from cerebrospinal meningitis during the week.

Medical Examiner for Norfolk County — Dr. Frederick E. Jones, of Quincy, Mass., has been appointed by Governor Guild to the position of medical examiner for Norfolk County.

A Centenarian. — Announcement is made of the death of Leander Perron at the reputed age of one hundred and four. Mr. Perron was the oldest person in Rhode Island, and, with one exception, the oldest in New England. He served actively in the Civil War, and thereafter led an active life until he was one hundred years old.

NEW YORK.

Head of the Department of Street Cleaning. The appointment of Macdonough Craven to the responsible position of head of the Department of Street Cleaning, a selection which was apparently made entirely independently of political considerations, has met with general approval. Mr. Craven, who is a descendant of Commodore Macdonough, of Lake Champlain fame, and a son of Admiral Thomas Craven, was graduated from the United States Naval Academy in 1881. He is well known in scientific circles, and was appointed a sanitary engineer in the Street Cleaning Department of New York, by the late Col. George E. Waring, when commissioner, who desired his assistance in solving the problem of garbage disposal. For a number of years he has been the expert on such disposal and the recognized head of the sanitary engineering division of the department. He supervised the construction of the first reduction plant on Barren Island, and to his skill and industry is due the rapid rebuilding of the plant after its destruction by fire last spring.

Windows in Tenement Houses. — Through a decision just handed down by Justice Bischoff, of the New York Supreme Court, the Tenement House Commission is upheld in enforcing the provision of the law which requires the placing of a window in every room of a tenement house. John O'Leary, a builder, who is erecting a row of tenements in the borough of the Bronx, applied for a mandamus to prevent Commissioner Butler of the Tenement House Department from compelling him to put windows in a number of alcoves which, according to his plans, were formed by the peculiar construction of the buildings. The Department objects to these alcoves for the reason that tenants are in the habit of stretching curtains in front of them, and thus creating a bedroom with defective light and ventilation. It is contended that if alcoves are thus turned into bedrooms they must be provided with windows, and in objecting to builders' plans which did not provide such windows, the Department has been in conflict with many architects. The test case brought by O'Leary was therefore watched with much interest, and this decision of the Supreme Court will have a widespread effect upon building operations throughout the city.

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Obituaries.

JAMES FINLAYSON, M.D., LL.D., F.R.P.S.

In the death of Dr. James Finlayson, which occurred in Glasgow on Oct. 9, Scotland loses one of its most distinguished medical men. Although in his sixty-sixth year, his death was wholly unexpected, his entire illness lasting less than twenty-four hours, terminating finally with an apoplexy.

Dr. Finlayson was born in Glasgow in 1840, received his preliminary education in the schools of that city and entered the university at the age of sixteen. For five years thereafter he was engaged in business, and at the end of that time entered upon his medical studies. Thirty years from the time of his graduation in 1869, he received the degree of LL.D. from his own university. Throughout his professional life Dr. Finlayson was a hospital physician and he taught for thirty-five consecutive years. From 1875 he was physician to the Western Infirmary. He was also for many years connected with the Royal Hospital for Sick Children in Glasgow, first as one of the physicians, and later as consulting physician. He was a prolific writer, and in all contributed about one hundred and fifty articles to British and foreign periodicals. For many years he was honorary librarian of the Faculty of Physicians and Surgeons of Glasgow, and during his tenure of office brought this library to be one of the most complete collections of medical books in Scotland, particularly in the lines of medical history and ancient literature. As a teacher he believed in the personal method with students and opposed the method of systematic lectures to large bodies of men.

Apart from his manifold professional duties, Dr. Finlayson found opportunity for personal cultivation in other lines. He had a profound interest in literature, archeology and theology. As a man he was held in universal esteem, and as a physician his counsels were much sought. His funeral, which occurred on Oct. 12, was largely attended not only by medical men, but by many of the influential citizens of Glasgow. Dr. Finlayson was never married.

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ROBERT T. DAVIS, M.D.

Dr. Robert T. Davis died in Fall River, Mass., Oct. 29, in his eighty-fourth year. He was born in Ireland, and came to America when three years old with his parents, who settled in Amesbury, Mass. He graduated from the Harvard Medical School in 1847. He married a daughter of Dr. Thomas Wilbur, of Fall River, and after practising medicine for a short time at Waterville, Me., he moved to Fall River, of which place he was an active, useful and successful citizen during the rest of his life, with the exception of a few years spent in New York.

Dr. Davis took a keen interest in politics, in which he exhibited much shrewdness. He was at one time mayor of Fall River and Representative of his district in the forty-eighth, forty-ninth and fiftieth congresses. He was a member of the first Massachusetts State Board of Charities, of the State Board of Health, and one of the Metropolitan Sewerage Commissioners. He served two terms in the Massachusetts Senate.

Dr. Davis was a large owner of mill stock in Fall River, and was president and a director of many of its manufacturing corporations. His was a busy, shrewd, successful, useful life in many fields of activity.

Current Literature.

The American Journal of the Medical Sciences

October, 1906.

1. Barker, L. F. *Psychotherapy and Re-education.*
2. Minor, C. L. *The Apical Outline in the Diagnosis of Incipient Pulmonary Tuberculosis.*
3. Lehman, W., and Voorsanger, W. C. *The Rontgen Rays in the Early Diagnosis of Pulmonary Tuberculosis.*
4. Klebs, A. C. and H. *Hematological Studies in Tuberculosis.*
5. Kinghorn, H. M., and Twichell, D. C. *The Serum Diagnosis of Tuberculosis.*
6. Landis, H. R. M. *The Clinical, Anatomical and Pathological Comparison of Tuberculous Cavities in the Lungs.*
7. Fisher, I. *Statistics of Diet in Sanatoria for Consumptives.*
8. Flick, L. F. *The Relative Value of the Home Treatment of Tuberculosis.*
9. Douglas, R. *The Etiology, Prognosis and Indications for Surgical Treatment of Tuberculous Peritonitis.*
10. Morse, J. L. *The Protection of Infants and Young Children from Tuberculous Infection.*
11. Jones, T. J. *Tuberculosis Among the Negroes.*
12. Walker, J. R. *Tuberculosis Among the Sioux Indians.*
13. Stow, B. *Organic Heart Diseases and Immunity from Pulmonary Tuberculosis.*

1. Barker first mentions the work of Déjerine in the Pinel ward of the Salpêtrière in Paris, in which cases of hysteria and neurasthenia are treated by isolation in screened beds and by constant attempt on the part of physicians and nurses to convince the patient that improvement is taking place and recovery certain. Barker has employed similar methods in 80 cases in the Johns Hopkins Hospital; 15 of these he reports in detail, illustrating the striking successes obtained.

2. Minor calls attention to a neglected point in physical diagnosis, — the outlining of the apices of the lung. This has been practised in Germany for twenty years or so, but in America it has not received the attention it deserves. Its value depends upoon the fact that when a lung is attacked by tuberculosis it shrinks, even before fibroid change occurs. Thus shrinkage of the apex from its normal percussion outline is a valuable early sign. The outlines should be determined by light elastic percussion, the patient erect, with head exactly in the anteroposterior plane. In normal cases, the highest portion of the inner border is at the level of the first dorsal spine, or between the seventh cervical and first dorsal spines, 5 or 6 cm. from the median line. The posterior inner border descends from this point in a line convex to the spinal column, to the lower border of the second dorsal vertebra, 1 cm. from the vertical spine. The anterior inner line is concave inward above, and slightly convex inward below, the lower end being one-half inch external to the sternoclavicular joint. The external line at the top lies one and one-half to two and one-half inches, external to the inner line. The posterior external line runs downward with a concavity outward to the middle of the spine of the scapula. The anterior outer line is still concave outward and ends very regularly at the junction of the middle and outer thirds of the clavicle. In early tuberculosis, a dislocation of the inner line outward is earliest seen, both anteriorly and posteriorly. The outer border is altered less early. Dislocation of both borders speaks for a fairly advanced or a burnt-out process. The shrinkage may disappear by development of compensatory emphysema. The determination of apical outlines is especially valuable in cases where there are changes in breath sounds, without dullness, at the right apex, and there is doubt as to whether they are physiological or pathological.

3. Lehman and Voorsanger report the results of their work, in comparing the results of physical examination with the x-ray findings in 18 cases. The signs suggesting pulmonary tuberculosis as observed by the x-ray are: (1) Lessened excursion of the diaphragm on the diseased side; (2) shadows along the bronchi indicating peribronchitic tuberculosis, also centrally located cavities; (3) haziness of the apex or of the whole lung, indicating thickening of lung tissue; (4) proof of the existence of enlarged peri-

bronchial glands. In general, in the cases observed, the clinical and the x-ray findings agreed. In a majority of cases, however, the x-rays gave information which added to the results of ordinary clinical examination, often indicating that the disease was more wide-spread than other evidence could show. In a few cases involvement of the apex, evident clinically, was not recognizable by the x-ray.

4. A. C. and H. Klebs describe new investigations as to the behavior of the leucocytes in pulmonary tuberculosis, especially the researches of Arneth. According to the theory of this author, the resistance to disease is to some extent to be measured by the number of nuclear divisions present in the polymorphonuclear neutrophiles, — the greater the average number of divisions in the nuclei, the greater the resistance. Klebs and Klebs find in all of severe cases of tuberculosis, alterations in the "neutrophilic blood picture," consisting in great increase of the proportion of neutrophiles which show but one or two divisions in their nuclei, thus confirming Arneth's statements.

5. Kinghorn and Twichell report the results of agglutination reactions performed with the homogeneous cultures of tubercle bacilli of Arloing and Courmont, whose methods they have carefully followed. Of sera from persons apparently healthy, 84% gave positive reactions, in dilutions averaging 1: 13.6. Of sera from tuberculous patients, 87% gave positive reactions in dilutions averaging 1: 14.8. From this they conclude that the serum diagnosis of tuberculosis is of no practical value.

6. Landis analyzes 53 cases of cavity, comparing clinical signs with autopsy findings. With few exceptions the cavities were situated in the upper lobes. Pleural thickening over the cavity was present in 60 of the 76 cavities found. Of these 76 cavities, 58 had been recognized clinically. In analysis of the physical signs observed over these cavities tactile fremitus was exaggerated in 34 cases, diminished in 13; percussion was tympanitic in 36 cases, dull in 16, hyperresonant in 3, cracked pot in 3; breath sounds were cavernous in 29, amphoric in 19, bronchial in 13, distant and indefinite in 7; râles were absent in 9, fine and moist in 16, consonating in 17, gurgling in 16; vocal resonance was exaggerated in 51, diminished in but 1; whispering pectoriloquy was present in 53, absent in 5. The value of these various signs, based on frequency of occurrence, is stated in the following order: (1) Whispering pectoriloquy, (2) tympany, (3) cavernous or amphoric breathing, (4) gurgling or consonating râles. Combination of any two of these signs increases the probability of the existence of a cavity. In 10 cases cavity was diagnosed but at autopsy not found; in 5 of these the error was attributed to consolidation around a bronchus, in 4 to transmission of signs from the other lung.

8. Flick points out the serious objections to sending a tuberculous patient of moderate means away from his home. The old belief in the necessity of change in climate is losing ground. The five essentials in the modern treatment of tuberculosis are careful diet, regulation of exercise and rest, regulation of daily mode of life, medication and artificial immunization. These require the supervision of most carefully trained physicians, who at present are to be found mainly in the large centers of population. Under the supervision of such physicians, Flick maintains that treatment can be efficiently carried out in city or in country, irrespective of climate.

9. Douglas gives numerous statistics and references to literature. Tuberculous peritonitis he finds is most common between twenty and forty years of age, and in the female sex. It is almost always secondary to tuberculosis elsewhere,— in intestines, lungs, glands, the genital tract or the bones. Much stress is laid upon the importance of tuberculous salpingitis as a source of infection in women. Tuberculous peritonitis may be recovered from, whether treated medically or surgically. Statements as to the relative results of these two methods of treatment, however, conflict. In sub-acute cases the outlook is favorable. In young children the outlook is bad. Complications such as pleurisy or suppurating glands make the prognosis less favorable. The chronic ascitic forms are most amenable to operative treatment. In the fibrous and ulcerous forms operation should be undertaken only for special conditions. The author dissents from the view that the diagnosis of tuberculous peritonitis calls for immediate operation, but urges interference as soon as medical and hygienic measures have failed to give satisfactory improvement. At operation all fluid should be removed. Also, where possible, foci of infection, such as caseous mesenteric glands or tuberculous tubes, should be excised.

10. Morse's article may be summarized as follows: Autopsies in children under fifteen years show tuberculosis in 25% to 35%, the frequency of the disease increasing most rapidly from the first to the fifth year. The mortality from tuberculosis before puberty is greatest between the ages of two and four. These facts seem to show that the infection occurs in the home rather than out of the house. Factors in increasing the danger are: tuberculosis in parents, poor food and hygiene, tonsillar and adenoid hypertrophy, measles, pertussis and influenza. The sources of infection are sputum and milk. Kissing, proximity of a tuberculous patient, and the presence of sputum on playgrounds must be guarded against. Sending the children of tuberculous parents into the country is the most effective means of prophylaxis.

11. Jones calls attention to the fact that the death-rate from tuberculosis among negroes in this country is two to seven times that of any other race, with the exception of the Irish, whose mortality from tuberculosis is two thirds that of the negro. The fact that negroes are employed mainly as domestic servants makes them still more of a danger to the community.

13. Stow quotes literature to show that whereas heart diseases producing pulmonary anemia (*e.g.*, pulmonic stenosis) increase the susceptibility to pulmonary tuberculosis, those diseases of the heart which produce stasis in the pulmonary circulation give a high degree of immunity.

The Journal of the American Medical Association
Oct. 13, 1906.

1. McClanahan, H. *Hemorrhage in the Newborn.*
2. Shoemaker, J. V., and Boston, L. N. *Benign Cystic Epithelioma.*
3. Biening, W. L., and Egdahl, E. *A Study of the Blood in Banti's Disease before and after Splenectomy.*
4. Fenwick, E. H. *Vital Points in the Technique of Suprapubic Enucleation of the Prostate.*
5. Ferguson, A. H. *Indications for Prostatectomy and the Results of the Operation.*
6. Mink, O. J., and McLean, N. T. *Gangosa.*
7. Ruediger, G. F. *The Bacteria in Scarlatinal and Normal Throats.*
8. Kean, J. R. *The System of Identification by Finger Prints Recently Adopted for the United States Army.*
9. Ransohoff, J. *The Treatment of Fractures of the Patella.*
10. Northrup, W. P. *The Open-Air Treatment of Pneumonia.*
11. Abt, I. A. *Acute Non-Suppurative Encephalitis in Children.*

1. McClanahan reports six cases of hemorrhage occurring spontaneously in the newborn, with histories; several cases of traumatic hemorrhage are also briefly reported. One of the spontaneous cases was a fatal hemorrhage from the lungs, which apparently is rather rare. He gives the principal facts in regard to hemorrhage of the newborn, its occurrence within the first few days after birth, its serious character in most forms, its apparent lack of any relation to hemophilia and the obscurity of its etiology. He thinks that it is probably due to some unknown specific cause producing a change in the blood vessels. In hemorrhages occurring later than the first ten days of life, he considers septic infection as the most likely factor. His experience, apparently, does not afford any special support to the theory of hereditary syphilis in these cases, though it is considered an important predisposing cause.

2. Shoemaker and Boston report a case of benign cystic epithelioma. They have been able to find but twenty-four other cases in the literature. The tumors were multiple, the size of a pea, and extended in a chain from the infraclavicular region on to the arm. Histological and blood examinations are given in full.

3. Biening and Egdahl report a case of Banti's disease in which splenectomy was performed, and discuss the blood findings. Before operation the blood condition was

that of a secondary anemia, with low hemoglobin and leukopenia. After splenectomy there was a slight fall in red cells, then a rise; there was a leukocytosis at its maximum twelve days after operation, and characterized by a relative increase in the mononuclear leukocytes, especially the large mononuclears. The good results from splenectomy in both splenic anemia and Banti's disease seem to favor the view that the spleen is in some way responsible for the poor blood conditions. Sixteen months after operation, in the author's case, the blood and general condition was good, but a high degree of ascites was present.

4. Fenwick describes his technique in suprapubic prostatectomy, particularly emphasizing the importance of leaving the vesical orifice and its lining mucous membrane intact. The steps of the operation are clearly shown by illustrations.

5. Ferguson classifies the cases of prostatic hypertrophy as follows: 1. Cases manifesting genito-urinary functional disturbances in the first congestive stage of the disease, in which proper hygienic and local treatment may effect a cure, or at least in some cases avert operation. 2. Cases with partial retention, in which the condition progresses insidiously, revealing itself in an acute attack of retention with subsequent residual urine and the necessity of catheterization, or more chronic gradual distention of the bladder with intermittent dribbling of urine. 3. Cases with complete retention, with frequent involuntary urination and almost constant dribbling at night. 4. Cases of absolute incontinence and no residual urine. Prostatic enlargement does not always call for operation; the gland may be extremely large and yet cause no obstruction. Obstruction is the one important thing. Ferguson enumerates in detail the pathologic indications for prostatectomy: the conditions that interfere with the function of the vesical meatus; the obstruction of the flow of urine in the prostatic urethra; the contraction and cicatrization of the organ from chronic inflammation; the deleterious effect of prostatic obstruction on the bladder, kidneys and rectum. He reviews the literature bearing on complications, sequelæ and mortality, and describes his own practice in performing the perineal operation. He puts the patient preferably in the extra lithotomy position, and, while he prefers to open the membranous urethra and proceed down to the sinus pocularis at the point where the ejaculatory ducts open, he has frequently removed the prostate without any injury to the membranous urethra. After splitting the capsule laterally, it is best to enucleate the lateral lobes first, carefully avoiding injury to the ejaculatory ducts. The finger is pressed into the prostatic urethra and acts as a guide while the fibrous attachments between it and the prostate are cut away with cutting forceps. In case the ducts are pushed to one or both sides, and the prostatic enlargement rises up into the bladder he inserts the depressor into the bladder through the perineum to aid the finger in the enucleation. Care should be taken not to injure the vesical sphincter in removing prostatic nodules behind the bladder, and it is best, he states, to do this piece by piece with the biting forceps. When there is a polypoid middle lobe projecting into the bladder he removes it by way of the internal vesical orifice. While it is sometimes impossible to save the upper prostatic urethra, especially if the enlargement completely surrounds it, it is not necessary to remove the whole of it, as is done in the suprapubic operation. In suitable cases it is possible to remove the whole prostate without injury to the bladder, ejaculatory ducts or prostatic urethra. In cases in which there is no necessity of saving the procreative power, the ejaculatory ducts are deliberately severed, and this expedites and facilitates the operation. If it is very desirable to save the ducts, Ferguson says another expedient may be adopted which aids as a guide to save them. This is to open the inguinal region, and seeking out the vas deferens, to pass a fine probe down to the sinus pocularis. The best material he has found for this is fine aluminum bronze wire doubled on itself. If catheterizing the ducts is impracticable, methylene blue can be injected, which will make it possible to recognize this tissue if it is injured. He makes it a practice to stain the bladder and prostatic urethra in all cases, and before operating to wash it out of the bladder and in its place leave a solution of boric acid sufficient to distend the bladder to its utmost capacity. As regards drainage he thinks the technique is improved and convalescence hastened by draining through the penis by an ordinary retention catheter, No. 23, American. The article is very fully illustrated.

6. Mink and McLean describe the disease known as gangosa, a form of ulcerated rhinopharyngitis endemic in the Ladrone and Caroline Islands, reported also from other tropical regions. It produces extensive destruction of tissues.

9. Ransohoff advises against interference in fractures of the patella where there is no large diastasis of fragments and crepitus. A pathognomonic sign of an intact capsule is the ability of the patient to extend the leg, or to lift it with some little assistance, within a few days after the injury; presence of this sign should militate against operation. Where operation is not performed, two measures are urged: *First*, aspiration of the joint as soon as feasible; *second*, massage and passive motion instituted within ten days or two weeks. Operation is to be advised if there is an extensive involvement of the capsular expansions beyond the patella, provided always that proper skill and good environment are at command. Open operation with suture of lateral tears, and fixation of the fragments is the procedure ordinarily indicated. This operation should be done in the first week. In cases of long standing, excision of fragments followed by a plastic operation on the tendon is preferable. In all cases the dangers of interference with the knee joint must be fully considered.

10. Northrup, speaking from his experience during the past year at the Presbyterian Hospital, New York, strongly advocates the open-air treatment of pneumonia. His patients have been put out on the roof for six hours a day in all weathers in which harsh high winds, rain or snow did not prevent. In private houses a portion of the room close to the open window can be screened off to establish similar conditions. The patient, however, must be kept comfortably warm, especially the feet. No harmful results and much benefit have been noted in pneumonia. It is suggested that the treatment should prove advantageous in other septic fevers.

11. Abt calls attention to acute non-suppurative encephalitis as neither a rare nor a new disease among children. According to Strümpel it is analogous to acute poliomyelitis. It is of sudden onset, usually in the midst of perfect health, but sometimes in the train of acute infections such as pneumonia. It begins with fever and malaise, then vomiting, convulsions or coma. Except in the few fatal cases the acute symptoms cease in a few days or weeks, but paralysis in some form almost always remains, usually a hemiplegia of the cerebral type with muscular contractions. Clinical cases and autopsy findings are described.

ANNALS OF SURGERY.

OCTOBER, 1906.

1. CUNNINGHAM, J. H. *Filariasis.*
2. COLEY, W. B. *The Radical Cure of Femoral Hernia.*
3. WEISER, W. R. *Cysts of the Urachus.*
4. BERR, E. *On the Value of the Indigo-Carmine Test as an Aid in the Diagnosis of Partial and Total Ureteral Occlusions.*
5. HUBBARD, J. C. *Arterio-Venous Anastomosis.*
6. CHETWOOD, C. H. *Prostatectomy in Two Stages: A Conservative Operation with Minimum Hazard.*
7. BARNETT, C. E. *The Female Prostate: An Anatomico-Surgical Study.*
8. HILTON, D. C. *Teratomata of the Inguino-Scrotal Region: Including a Review of Reported Cases.*
9. BOLTON, P. R. *A Method of Drainage of the Ankle Joint.*
10. YATES, J. L. *Sarcoma and Myoma of the Stomach.*

1. Following the report of an interesting operative case of lymph scrotum due to filaria, Cunningham reviews the general subject of human infection by this organism with great thoroughness. In many tropical and eastern countries the disease is endemic. It is transmitted to man through the mosquito as intermediate host. The adult parent worms are usually found situated in some of the large abdominal lymphatics or in those of the scrotal or

inguinal regions. The physical signs are those of lymph stasis. Chyluria and hematuria are frequent symptoms. The nocturnal presence of the embryo in the peripheral blood is accompanied by an increase in the proportion of eosinophile cells. Medical treatment must be considered of use only to palliate the symptoms arising as manifestations of the disease itself. Operative treatment to be anything more than symptomatic or palliative must be directed toward removing the parent worm. When these are accessible, as in occasional instances of lymph scrotum, operation will be curative.

2. In the hands of Coley the purse-string method of closing the femoral canal after ligation of the sac has never been followed by recurrence in a series of one hundred non-selected cases.

3. From a series of eighty-nine cases of cysts of the urachus, collected from the literature and from other sources, the large majority were found to occur in women between twenty and forty years of age. The most constant factor is a mass between the umbilicus and pubes, varying in size from a tumor barely palpable to one very large. The most prominent symptoms were pain, loss of weight, often fever and gastric disturbance. In 15% there was a discharging sinus through the umbilicus. It often simulates closely tubercular peritonitis. Incision and drainage are the first indications.

4. Berr concludes that (1) cystoscopic study of the behavior of the ureteral orifices does not suffice for the diagnosis of ureteral obstructions; (2) cystoscopic study of the ureteral jet, especially if the urine is normal, is equally insufficient; (3) ureteral catheterization *per se* cannot determine the presence of obstruction; (4) the indigo-carmine test *per se* is as inadequate as ureteral catheterization *per se*, because, though the ureter be patent, indigo-carmine may not be excreted if the kidney under examination is diseased; (5) both methods combined form a very satisfactory way of diagnosing ureteral obstruction.

5. Following the experimental work of Carrel and Guthrie which proved possible the reversal of the circulation in an extremity, Hubbard has attempted the cure of a case of gangrene of the leg by this method; the result was only partially satisfactory.

6. Chetwood advises drainage of the bladder through the perineum at the first operation, followed by enucleation of the prostate at a second, in feeble old men. He reports eight cases thus treated with good outcome.

10. Sarcoma of the stomach, though an uncommon affection, is less rare than has been supposed. The diagnosis of the round-cell varieties is practically impossible. Those of the spindle-cell type should be frequently recognized from their tendency to grow outward into the peritoneal cavity or between the layers of the omentum. In either instance the recognition of a purely surgical condition is usually easy. Prompt radical treatment offers the only hope of permanent relief.

Deutsche Medizinische Wochenschrift, No. 40.

Oct. 4, 1906.

1. Heilbronner, K. *The Early Diagnosis and Treatment of Dementia Paralytica.*
2. Ribbert, H. *Primary Tuberculosis and Anthracosis of the Lungs and Bronchial Glands.*
3. Oberndorffer, E. *The Differential Diagnosis between Otitic and Metastatic Abscesses of the Brain.*
4. Elischer, J. v., and Engel, K. *The Treatment of Mediastinal Tumors with Roentgen Rays.*
5. Lotze, K. *Eventration of the Diaphragm.*
6. Hermes, O. *Cases of Intestinal Obstruction Due to Gallstones.*
7. Dirk, A. *Kuhn's Tubage.*
8. Rothchuh, E. *A Case of Pruritus of the Vulva Cured with Blue Light.*

2. Ribbert has seen in cases of isolated tuberculosis of the bronchial glands small nodules just beneath the pleura. Their size varies from that of a pin head to a pea, and they show usually caseation or calcification, sometimes anthracosis. Histological examination shows that these are small lymph-nodules which have become tuberculous. This fact goes to prove that the infection must have been by inhalation. Ribbert denies that the inhalation of coal particles can lead to localized induration or cavity formation, and adduces evidence that in most cases localized anthracosis represents an end stage of healed tuberculosis. The same applies to anthracosis of the bronchial glands and to the anthracotic nodules under the pleura. He points out the fact that although the great majority of men are at some time infected with tuberculosis, only a small proportion of them sicken with the disease.

3. Oberndörffer reports a case of abscess in the parietal lobe secondary to purulent bronchitis. Owing to the presence of chronic middle-ear disease, the case was wrongly diagnosed as otitic in origin, and the abscess sought for in the temporal lobe. This case shows the importance of the rule that brain abscesses secondary to ear diseases are always situated in the temporal lobe or in the cerebellum; the apparent exceptions can be accounted for in other ways.

4. The authors report four cases of mediastinal tumor treated with Roentgen rays, of which one showed remarkable improvement and two others considerable benefit; one, probably tuberculous, was not influenced.

5. Lotze reports a case of eventration of the diaphragm, a rare condition in which the diaphragm is abnormally high on one side. The physical signs resemble closely those of diaphragmatic hernia; the differential diagnosis can be made by means of x-ray examination. A sound filled with mercury is introduced into the stomach and its position in relation to the diaphragm is determined with the fluoroscope. If the diaphragm is seen above the sound in the stomach, the case is one of eventration; if below, it is one of diaphragmatic hernia.

7. In various operations on the mouth and jaws the technique was much facilitated by the use of Kuhn's tube through which the anesthetic was administered. The tube fits closely into the glottis so that no blood can reach the bronchi.

Münchener Medizinische Wochenschrift, No. 40.

Oct. 2, 1906.

1. Rieder, H. *The Value of X-ray Examinations in Pneumonia.* (Continued article.)
2. Spiess, G. *The Treatment of Cancer by Anesthesia.*
3. Kayser, H. *Further Remarks on the Use of Ox Gall in the Cultivation of Typhoid Bacilli.*
4. Stieda, A. *The Sesamoid Bones of the Metatarso-Phalangeal Joints.*
5. Hornung and Galli. *A Case of Pulsus Alternans.*
6. Agéron, E. *On Unsuccessful Mineral-Water Cures in Diseases of the Stomach.*
7. Hoppe. *The Influence of Passive Hyperemia on the Healthy Eye and on the Course of Certain Eye Diseases.*

3. Kayser reports on the use of ox-gall for the cultivation of typhoid bacilli from the blood in 200 cases of typhoid; 98% of those in the first week of the disease were positive; in the second week, 58%; in the third to fifth weeks, 40%. Experiments have shown that the good effect of the ox gall is due to the fact that it prevents the bactericidal action of the blood on typhoid bacilli.

5. Hornung and Galli report a case of true pulsus alternans, a very rare condition, in which there are two beats of the heart to each radial pulse, with the ventricular beats equidistant. The cardiograms show that the second beat, the one that did not reach the wrist, was much weaker than the first. At one time, however, the curves of both beats were of the same height, and there was observed an alternating systolic murmur at the apex, corresponding in time to the beat which did not reach the wrist. This shows that the defective contractility was probably confined at this time to the papillary muscles and the mitral ring.

Berliner Klinische Wochenschrift, No. 38.

Sept. 17, 1906.

1. Kentzler, J. *Three Cases of Traumatic Tetanus Treated with Serum.*
2. Moreschi, C. *The Value of Diversion of the Complement (Komplementablenkungsverfahren) in Bacteriological Diagnosis.*
3. Weyl, T. *Toxic Nystagmus.*

4. Aldor, L. v. *The Pathology and Treatment of Cholelithiasis.*
5. Ganz, K. *The Treatment of Gonorrhea with Arhorin.*
6. Argutinsky, P. *The Disturbances of Development of the Bones in Congenital Myxedema.* (Concluded.)
7. Wohlberg. *The Winter Climate of the North Sea Resorts.* (Continued article.)

1. Kentzler reports three cases of traumatic tetanus successfully treated with antitoxin. Statistics show a reduction in the mortality from 67% to 37% since the use of antitoxin.

3. Weyl has observed nystagmus in animals poisoned with cresol, carbolic acid and lysol. He points out that the nystagmus of workers in coal mines may be due to the cresol and carbolic acid which sometimes are set free there in large quantities.

4. Aldor, of Carlsbad, has found in more than half of one hundred patients with cholelithiasis, signs of chronic intestinal catarrh, constipation, meteorism, mucus and undigested food in the feces. He therefore ascribes much importance to intestinal catarrh as favoring the invasion of the gall bladder by bacteria, which gives rise to the attack of cholecystitis or "gallstone colic." He follows the celebrated surgeon Kehr in placing the following absolute indications for operation: (1) Acute choledochitis, with severe symptoms; (2) acute and (3) chronic empyema of the gall bladder. Relative indications are given by those cases of chronic relapsing cholecystitis and choledochitis which resist medical treatment, and those cases of chronic hydrops of the gall bladder which cause severe symptoms.

6. Argutinsky reports a case of congenital myxedema in a child of nine years, which presents two interesting features. Firstly, there was no mental defect; secondly, the bony development was greatly retarded, as shown by the x-rays. The carpus was entirely without centers of ossification, although these centers commonly appear during the fourth month of life. The retardation of bony growth was greatest where the normal activity of bone production is least, in the carpus and tarsus, and it was least where bony activity is normally greatest, in the ribs, vertebræ and long bones. The appearance of the carpus to x-ray examination, therefore, is of importance in the diagnosis between congenital and acquired infantile myxedema.

Miscellany.

A GOOD ADMINISTRATIVE RECORD.

An unusual number of measures promoting the preservation of the public health in general and the personal welfare of the individual citizen, are to be credited this year to the administration of state affairs in Massachusetts. The following specific acts are cited by those who advocate a continuance of the present administration:

An Act (Chapter 502) in accordance with the recommendations contained in his Excellency's inaugural, providing for medical inspection of all children in the public schools, for the exclusion of those suffering from infectious diseases; for annual or more frequent tests of sight and hearing to the end that those suffering from all physical or mental defects thereof shall be guarded from injury and shall receive the full benefit of the school work and secure the best educational results.

An Act (Chapter 386) regulating the sale of patent medicines containing alcohol, opium, morphine, heroin or chloral hydrate, absolutely prohibiting the sale of those which contain cocaine or its salts or alpha or beta eucaine, and forbidding the sale of these latter drugs except upon the written prescription of a registered physician, dentist or veterinary surgeon.

An Act (Chapter 508) based upon an inaugural recommendation, establishing a school for feeble-minded children, with a physician as superintendent and assistant physicians, one of whom shall be a woman, which school shall be under the supervision of the state board of insanity and shall receive, maintain and educate indigent feeble-minded persons gratuitously, and others upon equitable terms.

An Act (Chapter 158) to prohibit the pollution of the Charles River within the boundaries of the metropolitan parks district by unpurified sewage; and another (Chapter 360) of the same purport concerning the Neponset River.

An Act (Chapter 365) designed to lighten the possible burden of maintaining pest houses in each city and town by permitting any two or more adjoining cities or towns to establish and maintain such hospitals in common.

An Act (Chapter 116) to prevent the misuse of milk cans and jars and to prohibit the shipment of cans containing offensive material to the producers of milk. This Act has already done much to keep from public sale milk polluted by bacterial contamination, and thus to protect infant life to some extent from its chief cause of mortality, cholera infantum.

A resolve (Chapter 59) providing for an investigation of what unwholesome changes, if any, occur in the flesh of undrawn poultry.

A resolve (Chapter 96) providing for an investigation of barber shops and the necessity of licensing barbers and regulating and supervising their business in the interest of the public health.

Correspondence.

CALCIUM OF THE BLOOD: ITS CLINICAL IMPORTANCE.

42 West 37th Street, New York,
Oct. 26, 1906.

Mr. Editor: Your editorial in issue of Oct. 25, 1906, raises an important clinical consideration, and one to which I have given much thought and attention, *i.e.*, How best to influence the coagulation time of the blood in acute disease. I am particularly interested in the question of cardiac thrombosis in lobar pneumonia, believing, as I do, that it causes directly many deaths which to-day are otherwise and wrongly explained. I also believe there is abundant clinical evidence, even of late date, to show that the carbonate of ammonia is specially valuable in this direction as a preventive. Is this true of typhoid fever, acute articular rheumatism, or diphtheria?

I am not so confident. Why? Because I have not seen it act so well in many cases of these diseases, and because, reasoning from clinical experience and knowledge, I believe the coagulation time of the blood in each infectious disease may depend upon a different etiological factor, or combination of factors, to form the fibrin ferment. It would appear if Atshul's[1] observations could be corroborated that iodide of potash in large doses prevents practically all danger from coagulation of the blood in lobar pneumonia. Of this use of the iodide, I have at present no personal experience.

Very truly yours,
Beverley Robinson, M.D.

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[1] N. Y. Med. Rec., March 26, 1904, p. 481.

RECORD OF MORTALITY

For the Week ending Saturday, Oct. 20, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,452	459	Quincy	5	2
Chicago	539	143	Waltham	4	—
Philadelphia	469	129	Gloucester	—	—
St. Louis	—	—	Pittsfield	—	—
Baltimore	225	61	Brookline	6	2
Cleveland	—	—	North Adams	6	0
Buffalo	—	—	Chicopee	5	3
Pittsburg	—	—	Northampton	7	1
Cincinnati	—	—	Medford	4	—
Milwaukee	—	—	Beverly	1	—
Washington		—	Hyde Park	2	—
Providence	54	16	Newburyport	—	—
Boston	206	63	Leominster	1	—
Worcester	53	16	Melrose	10	2
Fall River	28	18	Woburn	9	2
Cambridge	28	7	Marlborough	5	3
Lowell	37	15	Westfield	—	—
Lynn	24	5	Peabody	—	—
New Bedford	21	8	Revere	—	—
Springfield	16	4	Clinton	3	0
Lawrence	22	9	Attleboro	2	1
Somerville	21	9	Adams	0	—
Holyoke	20	9	Gardner	—	—
Brockton	4	1	Milford	5	—
Malden	5	2	Weymouth	3	2
Salem	16	4	Framingham	3	—
Chelsea	14	6	Watertown	6	3
Haverhill	9	4	Plymouth	—	—
Newton	7	1	Southbridge	1	—
Fitchburg	11	2	Wakefield	—	—
Taunton	10	3	Webster	—	
Everett	8	4			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 17, 1906.

Eager, J. M., assistant surgeon-general. Directed to proceed to Harrisburg, Pa., for special temporary duty, upon completion of which to rejoin his station in Washington, D. C. Oct. 17, 1906.

Godfrey, John, surgeon. Placed on waiting orders effective Oct. 13, 1906. Oct. 13, 1906.

Grubbs, S. B., passed assistant surgeon. Leave of absence granted Passed Assistant Surgeon Grubbs by bureau letter of Aug. 30, 1906, for two days, revoked. Oct. 13, 1906.

Wille, C. W., passed assistant surgeon. Directed to proceed to New Orleans, La., for special temporary duty, upon completion of which to rejoin his station at Gulf Quarantine. Oct. 12, 1906.

Houghton, M. W., acting assistant surgeon. Leave of absence granted Acting Assistant Surgeon Houghton for fifteen days from Oct. 15, 1906, amended so as to be effective from Oct. 20, 1906. Oct. 16, 1906.

Shehan, L. B., acting assistant surgeon. Granted leave of absence for thirty days from July 21, 1906, on account of sickness. Oct. 11, 1906.

Shehan, L. B., acting assistant surgeon. Granted leave of absence for seventeen days from Aug. 21, 1906. Oct. 11, 1906.

Walkley, W. S., acting assistant surgeon. Granted leave of absence for five days from Oct. 15, 1906, and excused for a further period of six days without pay from Oct. 20, 1906. Oct. 16, 1906.

BOARD CONVENED.

A board of medical officers was convened to meet in Baltimore, Md., Oct. 17, 1906, for the purpose of making a physical examination of a cadet of the Revenue-Cutter Service, said board to continue in session until Oct. 23 for the purpose of examining other cadets of the Revenue-Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman; Assistant Surgeon Friench Simpson, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING OCT. 27, 1906.

N. H. Drake, medical inspector, retired. Placed on the retired list of officers of the Navy from Oct. 6, 1906.

M. Donelson, acting assistant surgeon. Ordered to the U. S. Naval Medical School, Washington, D. C., for instruction.

D. H. Casto, acting assistant surgeon. Ordered to the U. S. Naval Medical School, Washington, D. C., for instruction.

C. J. Decker, surgeon. Granted sick leave of absence for three months.

E. R. Stitt, surgeon. Ordered to the Naval Medical School.

R. C. Holcomb, passed assistant surgeon. Ordered to additional duty as quarantine officer at Culebra, W. I., for the purpose of inspecting Government vessels arriving at that port

C. B. Munger, assistant surgeon. Detached U.S.T.S. "Pensacola." Ordered to Guam.

SOCIETY NOTICES.

Massachusetts Medical Benevolent Society. The annual meeting was held at the Boston Medical Library at 5 p.m., Thursday, Oct. 25. The Council met at the same place at 4.30 p.m. It includes the following officers: Dr. David W. Cheever, president; Dr. G. W. Gay, vice-president; Dr. W. L. Richardson, treasurer; Dr. W. H. Prescott, secretary; and the following trustees: Dr. G. W. Gay, Dr. F. H. Williams, Dr. Alfred Worcester, Dr. M. F. Gavin, Dr. W. A. Brooks, Jr., Dr. E. L. Pierson, Dr. E. H. Stevens, Dr. J. W. Pratt, Dr. Benjamin Tenney.

W. H. Prescott, *Secretary*.

The Harvey Society Lectures.—The second lecture in the Harvey Society course will be delivered at the New York. Academy of Medicine on Saturday evening, Nov. 3, at 8:30 by Prof. C. A. Herter. Subject: The Common Bacterial Infections of the Digestive Tract and the Intoxications arising from them.

Censors' Meeting, Suffolk District Medical Society. — A censors' meeting will be held Thursday, Nov. 8, at two o'clock, at the Boston Medical Library, for the examination of candidates for the Massachusetts Medical Society.

L. R. G. Crandon, M.D., *Secretary*.

RECENT DEATHS.

Robert Thompson Davis, M.D., M.M.S.S., died in Fall River Oct. 29, 1906, aged eighty-three years.

William Harsha Carothers, M.D., M.M.S.S., died in Melrose, Oct. 23, 1906, aged fifty-one years.

Walter Langdon Hall, M.D., M.M.S.S., died in Medford, Oct. 25, 1906, aged sixty years.

Dr. Frederick R. Hudson, of Hoosick Falls, Rensselaer County, N. Y., died in the State Hospital for the Insane at Poughkeepsie on Oct. 25, at the age of fifty years. He was formerly Assistant Surgeon of the Second Regiment, National Guard of the State of New York, and it was while on duty with a company of the regiment at the St. Louis Exposition that his insanity developed.

Dr. Charles P. Russell, of Utica, N. Y., died on Oct. 26. He was well known as a contributor to the medical journals.

BOOKS AND PAMPHLETS RECEIVED.

Operative Gynecology. By Howard A. Kelly, A.B., M.D., LL.D., F.R.C.S. (Hon. Edinb.) Second edition, revised and enlarged. Illustrated. Vols. I and II. New York and London: D. Appleton & Co. 1906.

Treasury Department, Public Health and Marine-Hospital Service of the United States. Hygienic Laboratory. Bulletin No. 30. I. Maternal Transmission of Immunity to Diphtheria Toxine. II. Maternal Transmission of Immunity to Diphtheria Toxine and Hypersusceptibility to Horse Serum in the Same Animal. By John F. Anderson. Washington. 1906.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopeia. A Manual on the Science of Chemistry and its Applications in Medicine and Pharmacy. By John Attfield, F.R.S., M.A., and Ph.D. (Tübingen), F.I.C., F.C.S. Edited by Leonard Dobbin, Ph.D. (Würzburg), F.I.C., F.C.S. Nineteenth edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1906.

Christ Among the Cattle. A Sermon Preached in the First Congregational Church, Portland, Ore. By Frederic Rowland Marwin. Fourth edition. Troy, N. Y.: Pafreats Book Co. 1906.

Student's Aids Series. Aids to Obstetrics. By Samuel Nall, B.A., M.B., D.P.H. Cantab., M.R.C.S. Eng. Sixth edition. New York: William Wood & Co. 1906.

A Statistical Study of Generic Characters of the Coccaceæ. By C. E. A. Winslow and Anne F. Rogers. From the Biological Laboratories, Massachusetts Institute of Technology. Boston. 1906. Reprint.

Buff: A Tale for the Thoughtful. By a Physiopath. Boston: Little, Brown & Co. 1906.

Address.

THE CLASSICAL SYMPTOMS OF HYSTERIA.*

BY PIERRE JANET, M.D.,
Professor at the Collège de France; Director Psychological Laboratory, Salpêtrière.

VI.

ON MOTOR AGITATIONS AND CONTRACTURES.

Hysteric neuroses very often present accidents of quite another nature, which at first sight seem to be different from somnambulisms. These accidents do not affect the whole body and mind like the former. They seem only to disturb certain functions, and in particular the accidents we consider to-day appear only to disturb the motor functions of the limbs. In spite of the disturbances seated in the arm or leg, the mind may appear absolutely intact, while in somnambulisms the delirium seemed to be general In the second place, these accidents, for instance motor disturbances, are lasting and are not momentary. Yet most physicians, especially since the end of the last century, do not hesitate to connect this *ensemble* of motor disturbances with the same neurosis, with hysteria. Now we can only justify this diagnosis by clinical study; later on we shall show that the mental disturbance is, at the bottom, about the same as in somnambulisms.

The motor disturbances that appear in the same subjects we are considering are very various and irregular; we could range them in two great groups: *first,* phenomena of at least apparent exaggeration of motion, which seem to exceed the will of the patient and to develop inopportunely and without his consent; *secondly,* phenomena of deficiency in which, on the contrary, motion seems to fail and not to obey the will and consciousness of the subject. In the first group which we designate under the general name of *motor agitations* are to be ranged tics, choreas, contractures; in the second, the strange functional paralysis. To-day we shall study the first group.

1. You all know the commonplace phenomenon of *tics,* but you must not fancy that all tics are hysteric; there are some epileptic tics, and much oftener psychasthenic tics, but to confine ourselves to our preceding diagnosis there are some tics that are to be met with in patients who have already had all the preceding forms of somnambulism and that alternate with these somnambulisms. After some examples of hysteric tics, let us proceed at once to the same kind of involuntary and useless movements that have a greater extent, and for that reason have been called *choreas.* The first class of choreas that physicians decidedly connected with hysteria were the rhythmical choreas, which very often occur in the hysteric fits and sometimes persist in the interval of fits. But arythmical chorea under certain conditions may very well also depend on hysteria.

2. Whatever may be the tics and choreic movements, you observe a certain number of psychological characters accompanying them. First of all, the will of the subject has no influence on it. The movement is not stopped by the will, it is only changed; it begins again more regularly when the subject gives up his efforts of will. The subject seems to be scarcely aware of his tic, of his chorea. We see those phenomena of insensibility appear here which will play a greater and greater part in the hysteric accidents. A somnambulist is not necessarily insensible in the waking state; he is merely amnesic. When we come to motor disturbances, the anesthesia begins to intervene. This kind of unconsciousness must play a certain part in the diagnosis. You will not meet again with the same characters in the tics of the psychasthenics. We notice many mental phenomena at the beginning of tics and choreas which many cases demonstrate. These ideas, more or less definite mental phenomena, persist throughout the development of the accident and can be put into evidence in many ways. The difficulty is greater in the case of great incoordinate choreas in which all the motor functions seem to take a part. It is no longer a special thought, a system of images, that seem to develop outside consciousness; it is a function in its entirety that seems to emancipate itself.

3. The problem becomes singularly more complicated when we examine other forms of dissociated motor activities; I mean tremors and contractures. Such contractures can be observed in absolutely all the muscles of the body and in each region they raise very great medical problems. I think the most expert physician ought never to boast that he will make no mistake when he has to decide between hysteric coxalgia and tuberculous coxalgia. Curiously enough, we also meet here with an important psychological problem, with a question that is certainly one of the most obscure of pathological psychology. We may first observe a certain number of psychological facts connected with tremors and contractures which are pretty clear. We meet with some mental fits at the beginning and at the end of these accidents and we notice this fact during the time the phenomenon itself lasts. But we must confess that the action which appears in the tremors and the contractures is not identical, because it is performed in other conditions.

Here is my hypothesis; think of it what you please. The actions and the muscular movements present different degrees of perfection. The muscular movement of a draughtsman's hand is not the same as the muscular movement of a dog's or a crocodile's paw. There are some physiological properties accompanying the perfection of the act. I even think that there must be some anatomical differences. A great stress has been laid recently on the two organs that exist in the muscular fiber,—the fibrils which give short contractions and the sarcoplasm which gives long and permanent contractions. We see also the change of the muscular contraction by fatigue, the contractions become slower, have a longer period of decontraction, as in the case of lower animals. Now the action, by becoming unconscious in hysterics, by separating from consciousness, loses something of its dignity, retrogrades in a manner and assumes appearances that recall the action of visceral muscles, the action of lower animals and the action of fatigued muscles.

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* Author's abstract report of lecture delivered at the Harvard Medical School, Oct. 29 and 31, 1906.

VII.

HYSTERICAL PARALYSES. DIAGNOSIS.

The latest fashion in medical studies is to apply oneself to the study of hysteric paralyses, and much interesting work has been done on this question. Those patients in whom we observed the preceding phenomena are capable too of completely paralyzing a part of their body. These paralyses appear in about the same circumstances as the other phenomena; they are always brought about by an accident that, while being very slight in itself, is accompanied with a violent moral emotion and with disturbances of the imagination. These traumatic neuroses have been often produced by railway catastrophes, and some physicians have even adopted the expression of "railway spine." Other circumstances may act, for instance, fatigue, epecially when located in a limb and accompanied by an emotional state as is shown by certain observations. Lastly, there are some paralyses that follow somnambulisms and crises and, as we shall see later on, affect limbs formerly paralyzed or having in them causes of decay.

The most common hysteric paralyses seem to be analogous to the great organic paralyses; the most carefully studied nowadays is central hemiplegia. One half of the body is completely paralyzed; usually, it is true, hysteric paralysis strikes the limbs rather than the face, but the rule is not absolute; when the paralysis is on the right side, for instance, the face and speech may be paralyzed as well as the arm and the leg. In certain cases the diagnosis between hysteria and the apoplectic stroke is very delicate.

The second severe and frequent form is paraplegia in which both legs are completely paralyzed. This accident often appears when an individual is seized with an emotion while walking. The third form we speak of in to-day's lecture will be monoplegia which strikes a limb or a segment of a limb, for these paralyses may be very limited. Discussion is still active regarding the existence of hysteric facial paralysis. Interest also centers on the paralyses of the trunk, as exemplified by a beautiful example of this kind.

The diagnosis of hysteric paralyses is of capital importance and can be made in two manners. First, in an extrinsic manner by examining the symptoms which are foreign to the paralysis itself, the disturbances of the sensibility of the intelligence, the circumstances of appearance, etc. Secondly, you can make this diagnosis by an intrinsic examination which chiefly takes into account the paralysis itself and its clinical characters. This second method appears to be more accurate and scientific and is preferred nowadays. Let us then first give attention to those intrinsic characters. You may first, in certain cases, take into account the localization and the form of the paralysis, and in Austria Professor Freud has insisted a great deal on this point. Notice also the exaggeration of the symptoms, by which we can study the different gait of an organic hemiplegia and of a hysteric hemiplegia, the helicopode and heliopode walk of Charcot; to these positive characters are added negative characters such as absence of atrophy.

We come at last to the question of the reflexes, now considered as very important, chiefly, it must be said, on account of the studies of a French physician, M. Babinski. In a general manner, all the reflexes of a limb must remain normal in an hysteric paralysis. On the contrary, in an organic lesion, a certain number of reflexes must always be injured. A long discussion followed regarding the tendinous reflexes, the epileptoid trepidation, the cutaneous reflexes and the sign given by the toes, the reflexes of the pupils and about the importance of associated movements.

In a word, it is certain that the intrinsic examination gives us exceedingly valuable indications, but these are not absolutely certain signs. One is quite wrong in making things more difficult than they are in refusing the unquestionable services rendered to diagnosis by much more characteristic extrinsic signs.

3. The most important extrinsic sign of all is derived from the examination of sensibility, the modification of which are of the greatest importance in hysteria. Formerly the claw of the devil by the witches and the possessed was a more or less extensive part of the skin in which the subject was insensible to any touch or prick. All the modern authors have much insisted on all the varieties of this phenomenon. As regards the diagnostic of hysteric paralysis, this insensibility must be sought in three organs, — on the skin, on the mucous membranes and in the muscles. Some methods of examining those sensibilities were explained. One of the characters of this anesthesia that plays a most important part in the diagnosis is the localization or the place of the anesthesia, and we must study the forms of geometric segments which can be foreseen. This form of anesthesia is particularly interesting from a clinical and from a psychological point of view. The hysteric patient seems to attend to the popular conception rather than to the anatomical conception.

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Original Articles.

ACHYLIA GASTRICA.[1]

BY FRANKLIN W. WHITE, M.D.
Assistant in Theory and Practice of Physic, Harvard Medical School, Physician to Out-Patients at the Boston City Hospital.

Achylia gastrica is a term introduced by Einhorn to denote an absence of gastric secretion, lasting over a greater or less interval of time. The gastric contents contain no free or combined HCl, and the ferments are absent, or reduced to insufficient and unimportant traces. The condition is not rare, though the literature of the subject is rather limited, and an accurate knowledge of the condition is largely confined to specialists.

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[1] Read by invitation of the American Gastro-Enterological Association, at the ninth annual meeting, Boston, 1906.

Achylia is a sign of disturbed function of the stomach, which may accompany various disease conditions, such as cancer, severe anemia, and gastric catarrh, and the evidence of recent years tends to show that it also occurs frequently apart from primary organic disease of the stomach or other organs, as a purely functional disturbance.

The history of achylia is closely associated with that of atrophy of the gastric mucosa, and the discovery of a lack of gastric secretion in cancer, and atrophy, led to the false opinion that if no HCl or ferments were found the diagnosis of cancer or atrophy was justified; and the association of achylia with severe and fatal disease led also to the false belief that it was necessarily a severe condition leading in a short time to death. We know now that an absolute and permanent lack of gastric secretion is compatible with health and happiness, and that the gastric secretion can be spared and compensated for by intestinal digestion. In short, we can make a sharp distinction clinically between (*a*) secondary achylia associated with cancer, severe anemia, or atrophy of the gastric mucosa, and (*b*) simple achylia without atrophy, which is a benign condition.

The cases which I wish to report were chosen from the following material: In 235 consecutive cases of chronic disease of the digestive organs which I have recently seen, there were 183 cases of disease of the stomach, consisting of neuroses, ulcer, cancer, catarrh, dilatation, etc., in which the ordinary analysis of the stomach contents was made. In this number, there were 41 cases of subacidity, not including cases of cancer of the stomach or other organs, and in the group of subacid cases were 9 patients in whom there was either entire or almost entire absence of all elements of the gastric juice,— a condition of achylia gastrica. In two of these patients, the condition is undoubtedly the terminal stage of a chronic gastric catarrh; they are only briefly mentioned in this paper; in the other seven, the condition is apparently one of simple primary achylia gastrica.

I have been testing the gastric contents for ferments in all cases in which free HCl was absent after a test meal and the total acidity very low, and in this manner these cases of achylia were recognized. I believe this condition would be more frequently found if it were carefully looked for.

These cases form an important and interesting group,— important, because of their considerable frequency, and the resemblance of some of them to gastric cancer. Several of the patients came to me with a diagnosis of cancer, and in one a laparotomy was performed, as a result of this diagnosis made by another physician. The patients are all men, whose ages varied from twenty-seven to seventy-three years. They have been under observation for a period varying from ten months to several years, with the exception of two undoubted recent cases in young men, which have been followed only three months. The diagnosis of achylia gastrica has been made from the results of examination of the stomach contents after a test meal in connection with the clinical history and physical examination of the patients.

Method of examination. — Each patient had a thorough physical examination, and the stomach contents, obtained by expression or aspiration three-quarters to one hour after an Ewald test meal was examined as follows: The amount of contents, its appearance, whether well digested or not, and the amount of mucus were noted. The test for free HCl, was made with Gunzburg's reagent, and the total acidity estimated, using phenalphthalein as an indicator. The combined HCl was tested for occasionally by the qualitative Sjoquist-Ewald method,[1] but where the total acidity was five or less, in other words, no more than that of the test meal which had been eaten, the test for combined HCl was considered unnecessary.

The test for lactic acid was made by Uffelman's simple method, and if positive, confirmed by repeating the test with an acid ether extract of the gastric contents. The test for pepsin and pepsinogen was made by the Hammerschlag method. Occasionally no gastric contents could be obtained one hour after the Ewald test meal, in which case the test was repeated and the contents aspirated at the end of three-fourths or one-half hour. The test for rennin and rennin-zymogen was made by Boas' dilution method. Peptones were tested for by the biuret reaction. In several cases, fragments of mucous membrane were found, which were carefully examined. The examination of the stomach contents was repeated many times in each case.

The stools were examined according to the Schmidt-Strassburger method, especial attention being paid to signs of imperfect gastric digestion, such as residue of connective tissue and muscle fiber. The guaiac test for invisible blood was applied to the acetic acid-ether extract of the stools in each case.

Clinical history. — I will summarize the clinical history of these patients, first speaking briefly for purposes of comparison of the two cases in which the achylia was evidently a sequel to chronic gastric catarrh.

The ages were forty-three and seventy-five. Both had used alcohol and tobacco to excess, and one was an excessive tea drinker. The duration of gastric symptoms was five and ten years respectively. These consisted of distress after meals, especially when hard food was eaten, anorexia, frequent vomiting of slimy stuff, gradual loss of

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[1] To ten cc. of filtrate add barium carbonate, evaporate to dryness and reduce to ash. Dissolve the residue in water. If, on addition of a solution of sodium carbonate, no precipitate is found, it shows the absence of barium chloride and that no combined HCl was present.

10–20 lbs. weight, slight anemia, occasional mild attacks of diarrhea. Physical examination showed nothing abnormal save slight anemia, and malnutrition. The size and position of the stomach were normal. The contents of the fasting stomach consisted of 10–20 cc. thick ropy mucus containing considerable epithelium and leucocytes. The residue after the test breakfast was similar to the cases next to be described. The stools in the older man were thin fluid and foul during attacks of diarrhea, and then and also at other times showed microscopically many well preserved muscle fibers, and considerable connective tissue in small flakes. The stools of the younger man were normal.

The ages of the cases of simple achylia gastrica were as follows: Three of them twenty-seven, the others thirty-three, thirty-six, forty-three and seventy-three years. Four were markedly neurasthenic. The course of the illness was variable, and the symptoms were none or many. In one case, there were at first no symptoms referable to either the stomach or bowel, and the examination of the gastric contents was made in searching for an explanation of debility and loss of weight. In one case, there were no gastric symptoms, but the patient came for treatment of diarrhea, which evidently had its source in the stomach. Oppler, Einhorn and Schmidt have pointed out the relations between achylia gastrica and intestinal catarrhs. In four cases there were gastric symptoms, such as distress after meals, belching of gas, anorexia, also many nervous symptoms, associated with moderate loss of weight, and in two of them occasional attacks of diarrhea. All these patients made some permanent gain in weight under treatment, three of them from 3 to 5 lbs., one 8 lbs. and one 15 lbs. In none of the patients were the symptoms severe, or even very troublesome. Intervals of comparative health or entire absence of symptoms alternated with relapses due to overindulgence in food, or the result of the weather.

Two of the patients when last seen had had no trouble with stomach or bowel for months. They illustrate well the entire lack of symptoms in achylia when the motility of the stomach is not affected, and the bowel not irritated. The intestine does the work of the stomach, if there is no stasis of food, and no lack of nutrition results. The patients feel perfectly well, and either maintain their weight, or gain materially.

The ultimate course of the achylia is interesting. The gastric secretion in the two patients with chronic atrophic catarrh showed no change for the better, as might be expected. In six cases of simple achylia, the condition has persisted up to the present time; in four, over a period of observation of one to two years, and in two cases for two months.

In one case a return of gastric secretion to approximate normal conditions has occurred. This was a nervous, over-worked student of twenty-seven years, who had suffered for the last seven years with distress two hours after meals, with occasional regurgitation of food. He was first seen nearly a year ago, when the stomach contents after a test meal showed no free HCl, total acidity 3, and absence of ferments and their zymogens. This condition persisted unchanged for five months under observation, at the end of which time the gastric secretion was found to be entirely normal, free HCl 25, total acidity 41, ferments normal. This normal condition has continued without variation up to the present time. No definite explanation of the change can be given. The patient's general condition has considerably improved under rest, careful diet and tonics, but headaches and other nervous symptoms persist. There has been a gain in weight of three pounds only.

Physical signs. — Thorough physical examination of these patients showed no other bodily ailment to which the conditions of the stomach were secondary. One was a slender, overworked student, three were vigorous young men, and three were older men, whose loss of weight, slight anemia and debility made it necessary to consider the possibility of incipient gastric cancer.

Examination of the blood revealed a normal condition, or slight anemia. The red cells varied from 4,500,000 to 5,400,000; the white cells from 7,000 to 8,000 and the hemoglobin from 70% to 100%.

The stomach was found to be of normal size and position in all. Examination of the contents of the fasting stomach showed no signs of chronic catarrh or stasis of food. The characteristic features of the stomach contents were the small amount, little fluid, undigested appearance, absence of free and combined HCl, the complete or almost complete inability to digest proteids when rendered mildly acid (0.20%) with HCl, and the complete or almost complete absence of power to coagulate milk. The amount of gastric contents was small (10 to 50 cc.), often so small that it was necessary to aspirate the contents in less than an hour in order to obtain any residue; this may be due either to the rapid emptying of the stomach, or to the fact that the stomach had lost its power of secretion, and of diluting the gastric contents, or to the thick pasty nature of the residue, which was difficult to aspirate through a tube.

The gastric contents looked like food which had been simply chewed and swallowed, and not digested. No excess of mucus was present, and the microscopic examination of the sediment showed nothing characteristic except fresh blood corpuscles. The filtrate of the stomach contents showed no free HCl, and a total acidity of from 2 to 5, no greater, in fact, than that of the food taken (the acidity of an Ewald test breakfast of 35 gm. of bread well macerated in 300 cc. of water, averages 4 to 6. The mild alkalinity of the saliva which is mixed with it probably has a slight neutralizing effect). Pepsin and pepsinogen were invariably absent in 4 cases, and present in minute traces in 3. Rennet and rennet zymogen were always absent in three cases, and in 4 gave a positive result in the undiluted stomach contents, but negative in dilutions. Lactic acid was absent. No biuret reaction for peptone was obtained.

The work of Hammerschlag, Troller, Gintl and Schiff has shown that the secretion of HCl and of ferments in the stomach is more or less independent and that either one may be diminished without the other being affected; and Riegel and others have considered the secretion of pepsin more constant than the HCl function of the stomach. Cases of simple achylia seem to be an exception to the rule, for we have found the ferments very slightly if any more persistent than the HCl. Robin and Schiff have shown that the same conditions may occur in gastric cancer, so that the ferments cannot be used to distinguish simple achylia from cancer.

If we are correct in considering the loss of secretion in our cases to be functional, it is evident that simple achylia forms an exception to the rule laid down by Boas and Cohnheim, that in anacid neuroses of the stomach, the ferment secretion is usually well preserved, while in organic diseases of the stomach, such as catarrhal gastritis, interstitial gastritis and atrophy of the gastric glands, the ferments are diminished or absent. It is evident that the estimation of gastric ferments cannot be relied upon to distinguish neuroses from organic disease of the stomach.

The gastric mucosa was very easily wounded in getting the residue from the test meal, even when a tube with a closed end and side openings was used and the contents expressed instead of aspirated. Fine blood streaks were occasionally seen, and in three instances, small fragments of the gastric mucosa were obtained. These were carefully prepared and examined. Two showed nothing abnormal. One showed a slight degree of granular gastritis. These findings are interesting, but do not necessarily indicate the condition of the stomach as a whole.

The stools were characteristic. In the absence of diarrhea they showed no gross residue or mucus; fat and starch digestion were normal; microscopically an excess of well preserved muscle fiber was often found, and considerable connective tissue in threads and flakes; this occasionally appeared as a fine network through an otherwise normal stool. At other times, the stools were entirely normal. This is in accord with the results of Von Noorden and others, who have shown that digestion may be perfect in achylia.

When diarrhea occurred the stools were light colored, watery, usually foul, mucus was present often with leucocytes, and considerable epithelium and an excess of fatty acids and soaps, and muscle fibers and even connective tissue appeared as a macroscopic residue and as a fine network through the whole tool. This condition clearly shows a lack of gastric secretion, for we know that connective tissue, if not thoroughly cooked through, is only or chiefly digested in the stomach. This "connective tissue reaction" is both delicate and useful; it is the simplest and best sign of the bowel trouble which has its source in the stomach.

The presence of macroscopic meat residue in the feces indicates a disturbance of the intestine also, which was no doubt secondary. We know that the stomach does only part of the work of digesting meat, the greater part is done in the bowels. The hypermotility of the stomach may have also played a part in irritating the bowel by rapidly depositing the food there in an undigested condition. It is evident that the lack of gastric digestion produced a great diversity of results in the bowels, varying from slight functional changes to quite severe catarrh. In several instances, the bowel trouble was so pronounced as to entirely overshadow the stomach symptoms. The presence of connective tissue in the stool was of great value in such cases in indicating the source of the trouble.

The repeated examination of the stool for invisible blood by the guaiac method always gave a negative result, which is important in distinguishing these cases from cancer.

Diagnosis. — We have to distinguish the primary symptomatic achylia, the primary weakness of gastric secretion, from the loss of secretion due to the gastric atrophy of cancer, severe anemia or late chronic catarrh.

The primary cases are characterized by the absence of gastric stasis, the absence of mucus, the small residue from the test breakfast and its chemical character, absent HCl ferments absent or in traces, lactic acid absent or in traces the vulnerable mucosa, and the absence of invisible blood in the stools. (The physical signs of chronic gastric catarrh or cancer occasionally resemble these closely.) The symptoms are much less characteristic; the nutrition suffers no important change. The patients may be young and vigorous, or neurasthenic and delicate or of middle age and beyond.

The diagnosis is most easily made where a total lack of gastric secretion is found in a patient who is young and vigorous, and whose symptoms are few and of short duration. Where no gastric secretion is found in a middle aged or elderly person who has lost flesh, is weak and somewhat anemic, the diagnosis requires careful and persistent study of the case, and may be very difficult. It is imperative to make a diagnosis between simple achylia and cancer in order to give the patient the benefit of appropriate early treatment, and it is important also to distinguish functional absence of secretion from chronic catarrh. There is often a striking clinical contrast between cases of simple achylia and atrophy, the first young, vigorous and healthy; the second old, weak and suffering from severe anemia.

In simple achylia no true cachexia is present, though loss of weight is common because the patient may eat too little. A long history of gastric symptoms and a permanent gain in weight and strength practically exclude cancer. In simple achylia we do not have occult blood in the stools in the absence of other lesions of the digestive canal. In cancer the permanent and abundant presence of occult blood in the stools is the rule. In cancer and in chronic catarrh the acidity of the stomach contents is usually decidedly higher than in simple achylia.

The examination of the fasting stomach is one of the most important means of diagnosis; this is empty in simple achylia while in cancer diminished motility is very much more common, food remains are frequently found, and lactic acid appears early and constantly. The presence of changed blood, mucus, epithelium and leucocytes favor cancer and catarrh.

Martius says that if achylia persists for months without stagnation and fermentation, cancer may be excluded. This is not absolutely true. Cases of well developed cancer of the lesser curvature of the stomach without stasis, or the *early stage* of any gastric cancer may present this picture, and are peculiarly difficult of diagnosis. The cancer may be latent for a long time, and have only a slight effect upon the general health as long as the motor function of the stomach is preserved and the bowel is normal. We rarely find cases, however, which cannot be diagnosed after close persistent observation.

The vulnerability of the gastric mucosa is not a distinctive feature of simple achylia. Fine streaks of blood and occasional shreds of mucosa are found in the gastric contents in all organic diseases of the stomach, in association with anacidity according to Cohnheim and Kuttner, though perhaps more frequently, more abundantly and as an earlier sign in cancer than in any other condition. Fragments of mucosa dislodged by the stomach tube tell us little about the stomach as a whole and have little value in diagnosis except in occasional lucky instances.

Cases of chronic gastric catarrh are often easily distinguished from simple achylia by the presence of an exciting cause,—misuse of alcohol, tobacco or cathartics, hasty and irregular meals, etc., the long duration of symptoms, the frequent appearance of mucus, the numerous epithelial cells in the stomach contents and wash-water.

The question of exploratory laparotomy for diagnosis is a very important one. We have seen that most cases of achylia, especially in young persons, present no great difficulties in diagnosis, but there is a group of cases in middle life and old age, where the suspicion of incipient gastric cancer is strong, where it is not wise to delay the diagnosis long lest the time for satisfactory treatment shall pass by. The necessity for early diagnosis in cancer is self-evident, and the question of exploratory laparotomy for the purpose is very important. The surgeons have blamed the physicians for keeping such cases *too long* under observation in attempt at diagnosis, and insist that every case where cancer is suspected should have an early surgical diagnosis in the belief that it is better to open many normal abdomens than to fail to discover and treat a gastric cancer before it reaches an inoperable stage.

On the other hand, we must not forget that even in recent years an exploratory laparotomy, except in especially selected cases, is an operation which carries a very decided immediate risk to life and it tends also to make the physician superficial in observation, because he knows that the diagnosis will be made at operation. I have seen a considerable number of laparotomies done in the last few years in which no lesion of the stomach was found, and not infrequently conditions were discovered which might have been diagnosed without operation. Occasionally the exploratory operation has been followed by a most unhappy fatal result.

I am a firm believer in the value of exploratory laparotomy for the purpose of diagnosis, but it should only be performed in carefully chosen cases, and after the patient has been, for several weeks at least, under constant expert medical supervision. In three of these cases, aged forty-three, forty-six and seventy-three, an exploratory operation was considered, but not advised, as the diagnosis became reasonably clear without it, and the subsequent history of the patients has justified this course. One of the patients aged seventy-five, in which a diagnosis of achylia secondary to chronic catarrh had been made, was seen by another physician who made the diagnosis of gastric cancer, and advised a laparotomy. At operation no gross lesion of the stomach was found. The patient, I am happy to say, recovered promptly from the operation and is as well as before.

Prognosis. — The prognosis in cases of simple achylia is good regarding life. The bowel may do the work of the stomach and the patient be free from symptoms and gain weight under careful treatment. My patients gained from three to fifteen pounds each. Ewald reports a case which gained forty-two pounds.

The fact that patients with achylia may remain in good physical condition so long as the stomach empties itself properly and no opportunity occurs for local fermentation of food, does not indicate that the stomach is an unnecessary organ and serves mainly as a reservoir for food. Such persons are rather in a state of unstable equilibrium, which may be easily upset. Achylia is a disease, not an anomaly, and persons who have it are much more sensitive than normal persons to gastric stimuli and irritants. If there is intestinal indigestion also the prognosis may be serious.

The fact that patients who have had achylia for years may in rare instances recover normal secretion should teach us never to give up hope in the individual case, but I see no way at present of telling in advance in which patient this is likely to occur, though the literature and my own experience indicate that such a change is confined to the neurotic cases.

Treatment. — The indications are to treat the general condition, the neurasthenia and anemia by appropriate measures, and secondarily care for the digestion. In treating the stomach, we try to do three things: (1) To stimulate and reestablish gastric secretion; (2) to compensate for its loss by artificially aiding digestion in those cases in which the pancreas is unable to do all the work; (3) to protect the motor functions of the stomach and avoid stagnation and fermentation of food.

I consider the last two indications much more important than the first. I have had no success with measures aiming to re-establish secretion, and in reading over the reported cases, now considerable in number, in which normal secretion has appeared after months or years of absence, it is not evident that the treatment has had much to do with the result.

The remedies chiefly used for this purpose are HCl bitters, stimulant foods, the stomach douche and electricity. HCl medication is usually useless, though we all know patients who, as Martius says, take 5 to 10 drops of officinal HCl in water after meals and insist that they feel badly without it and with it have no indigestion. It is difficult to see how this dose can have any value apart from auto-suggestion; 10 or 15 drops in water before, during and after meals may accomplish more. Biedert who was himself afflicted with achylia gastrica took 120 drops of dilute HCl daily. Chittenden has pointed out that 2½ liters of 0.2% HCl will be needed daily with a consumption of 100 gm. of proteid and yet none will be left over as free acid which is necessary for the action of pepsin. Given without pepsin it has no value as a digestant in the stomach, and with pepsin it is useless because not enough can be given to leave free acid. It is useless as an antiseptic, a stimulant to pancreatic secretion, or stimulant to gastric motility for the same reason, and fortunately it is not needed for the latter purpose as stasis is rare in simple achylia. HCl medication has not proved useful or necessary in my hands; the patients have remained well without it, and have recovered from acute attacks of indigestion without it.

If there are signs that the pancreas cannot fulfill the demands made upon it, it is more useful to remodel the diet, or to give pancreatic extract or other ferments active in the bowel. These cases without HCl seem to be the ideal ones for the use of pancreatin. In most cases diet without drugs is sufficient. We know that the pancreas usually compensates for the lack of gastric juice and the discovery of achylia in a comparatively healthy person is not an indication for the use of drugs calculated to stimulate secretion. A perfectly compensated digestive apparatus needs them no more than the compensated heart needs digitalis. A careful regulation of the diet has proved the most important part of the treatment. In selecting the diet it is more important to choose food which will favor the mechanical work of emptying the stomach, and will leave it readily than to seek out those suited to the lack of secretion. This means food so finely divided that it will go through a sieve, brothy foods, vegetable purées, finely chopped meat, not a bulky diet. Butter is very useful. Fine division of the food by chopping, cooking and chewing also lessens the work of the bowel. The patient must eat. He has perhaps decided that one or another food disagrees with him. One doctor has forbidden this food and another that until he eats far too little. The main thing with ill-nourished patients is to feed them well.

Adolph Schmidt has pointed out that the connective tissue diarrhea of achylia has given us a valuable indication for the treatment of the intestinal disturbance. The absence of the antiseptic action of HCl of the stomach has been considered the cause of these bowel troubles, but the HCl is only a factor in keeping down the fermentation, for two thirds of the patients with achylia have no bowel trouble. In general, lessened motility of the stomach has greater significance as a cause of bowel trouble than disturbances of secretion. When food leaves the stomach slowly, germs of fermentation and putrefaction establish themselves there more easily, and are emptied into the bowel, and in this fashion cause secondary trouble. This, however, is not important in simple achylia as stasis of food in the stomach very rarely occurs. The most important factor is a lack of digestion of connective tissue in the stomach. The bowel cannot digest raw or smoked connective tissue, and if this is not digested before leaving the stomach, it goes through the bowel practically unchanged. Gastric digestion of meat, of fat and of starch is not so important, because here the bowel secretion may compensate for it in a general diet. Where meat is not finely divided it is not only the connective tissue which is lost when the stomach does not do its work, but also the inclosed muscle and fat. Pieces of meat and fat may appear in the stool. This overloading the bowel with undigested material is very important as a cause of diarrhea and finally of catarrh of the bowel.

The number of intestinal bacteria depends largely on the quantity of food at their disposal. The better the food is digested, the fewer the intestinal bacteria. Many cases of diarrhea are undoubtedly explained by the growth of germs of fermentation and putrefaction in poorly digested food residue. If the patient over-eats he gets a diarrhea, not because he has swallowed too many bacteria, but because he has too much undigested food in the bowel which serves as a culture media for these omnipresent germs. No intestinal antiseptic or cathartic has any marked effect on the number of intestinal bacteria. Their number can be kept down only by taking away their food.

The indications for treatment to be drawn from this are briefly that we must not give patients with achylia raw, rare or smoked meat. We have seen that the bowel is unable to digest raw connective tissue and we must exclude it unless it can be shown that the use of raw and smoked meat has definite advantages of another sort over well-cooked meat. The experiments of Pawlow have shown that the use of raw flesh stimulates the secretion of the digestive fluids which is especially important in gastric anacidity. If we compare, however, the advantage of stimulating secretion with the disadvantage of a large amount of indigestible connective tissue, we find the latter is most important, and secretion can be equally well stimulated by means of meat extract, bouillon, etc.

Etiology. — We can only briefly consider the etiology of this interesting condition. It used to be generally assumed that achylia gastrica developed only after severe organic disease; and the atrophy of the gastric glands associated with cachexias, cancer of the breast, pernicious anemia, etc., has been carefully studied post-mortem by Fenwick and others. Since the introduction of the stomach tube cases of atrophy which were associated with pernicious anemia, cancer, senility and the terminal stage of chronic gastritis have been diagnosed during life. We have seen, however, that there is a large group of cases in which the achylia is not associated with these severe diseases, and does not threaten life, and which consequently have been very little studied in the autopsy room. In these there is no history of gastritis or other definite cause. They are apparently chiefly functional cases in which the glandular elements are not usually greatly altered, though they do probably change after long disuse. Analogy is seen in the kidney where the function may be suspended without atrophy of the organ, and in the atony of the stomach and bowel without organic change seen so frequently and persistently in neurasthenia and hysteria.

The etiology of this simple achylia gastrica is an interesting biological problem with a practical side. A well-known and important function is absent without definite cause, or apparent results. The latter may be explained by compensation. The intestinal digestion is so powerful that gastric digestion seems almost superfluous. It is not, however, simply an anomaly, the disappearance of a function which is unnecessary for the organism, (*cf.* Darwin), it is a diseased condition. The individual with achylia is worse off than his mates, — he is in a state of unstable equilibrium, and bowel trouble may be a real danger. The fact that achylias are neurasthenic is not a sufficient reason to consider this the cause. We find neurasthenia without loss of secretion, and loss of secretion without neurasthenia.

Martius considers it a primary weakness of secretion which is either congenital or develops on the basis of a predisposition. The hereditary element is interesting. Cases have been reported in a mother and daughter, in two brothers, etc. An anatomical basis for the condition has been suggested. Hemmeter cites ten cases of achylia which do not include cases of cancer or chronic gastric catarrh, in nine of which fragments of the mucosa obtained through the tube were examined. These all showed signs of granular gastritis and atrophy. Hemmeter questions whether the condition is ever a neurosis. The changes in the mucosa, however, seem far too slight to explain the striking change in function (compare the conditions in gastric cancer where the secondary change in the mucosa leads to achylia only when it has advanced to atrophy), and the granular gastritis may be the result not the cause of the achylia. It is not satisfactory to use the evidence from fragments of mucosa, obtained through the stomach tube, to settle a question of secretion which is the expression of the function of the whole stomach. In addition we have seen one case similar to those reported by Einhorn and others, of recovery of gastric secretion after a long period of achylia showing that achylia may exist when the glands of the stomach have not been totally destroyed (as shown by their recovery of secretion). In such cases the condition is probably due to nervous influences with partial atrophy, but no autopsies have been reported and the atrophy can only be conjectured, not proved. In short, cases of achylia may be divided into two groups: First, the severe and striking cases which were earliest reported in which there is unquestioned atrophy of the mucous membrane (either idiopathic or secondary to some serious condition such as cancer of pernicious anemia), and second, the group of cases which are by no means rare, in which achylia occurs in neurasthenic weak persons, those of middle life and beyond, where the condition is simply that of a weak stomach with feeble secretion.

In conclusion, I wish to emphasize these points:

(1) Simple achylia gastrica is a relatively common condition. It made up nearly 5% of this group of cases.

(2) The diagnosis must be made from the physical examination of the patient and his stomach contents and feces. The symptoms are not characteristic.

(3) Cases in which there is entire lack of HCl secretion, but in which very minute traces of pepsin or rennin are retained are not achylia in the strictest sense of the word, but are best classified as achylia.

(4) In making the diagnosis of gastric cancer, remember the frequency of simple achylia, which may resemble it closely. The examination of the feces for invisible blood is especially useful here.

(5) The etiology of simple achylia is unproved; its course suggests a functional origin.

(6) Its most satisfactory treatment is hygienic and dietary..

Condensed histories of the seven cases of simple achylia gastrica follow:

Case I. Age twenty-seven. Student. Pleurisy ten years ago. No tobacco or alcohol. Very nervous and overworked. For seven years distress two hours after meals, now all the time. Regurgitation of food. Headache. Weakness, dizziness, appetite good, bowel regular, no vomiting. Best weight two years ago 136; now 121. Objective examination: Slender and rather thin. Hemoglobin 85%. Reds 4,800,000. Whites 8,000. *Stomach:* Fasting contents, 23 cc.: No free HCl, residue normal. Contents after test meal, 30 to 50 cc.: no free HCl, total acidity 4 to 6, Pepsin 5 to 7%, rennet positive in undiluted contents only. Streaks of blood (tube). *Stools:* Usually normal, occasionally microscopic excess of meat fibers and connective tissue. Guaiac negative. The patient's general condition improved considerably under rest, diet, tonics and careful hygiene, but the achylia persisted un-

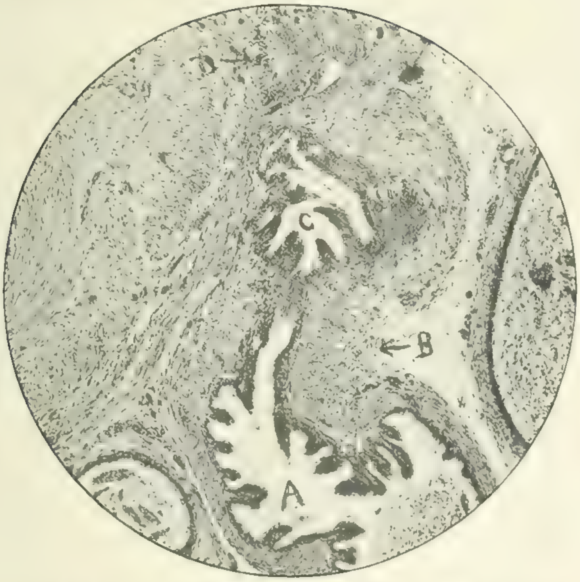

Fig. 4. Suture fifteen days old. Note transition (at B) from the vas (C) to one of the tubules of the epididymis (A).
At D is one of the silk sutures.

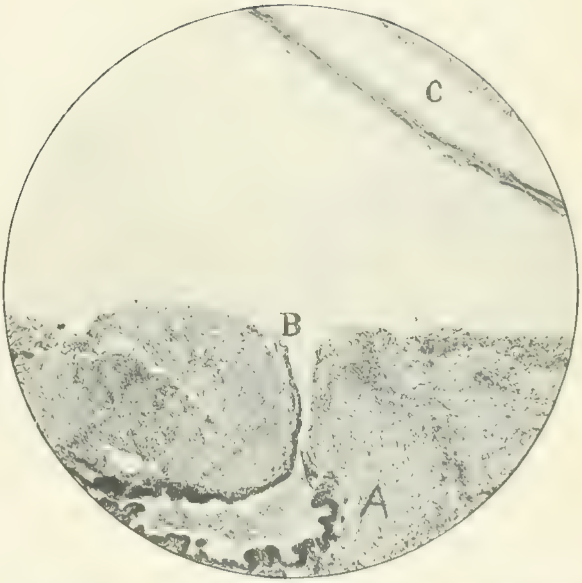

Fig. 5. Suture forty-eight hours old, stitches removed and vas (A) teased away from epididymis (C). Note new growth of single layer of flat epithelium in line of incision (at B).

changed for five months under observation, at the end of which time the gastric secretion was found to be entirely normal. Free HCl, 25. Total acidity 41. Pepsin 80%. Rennet positive in 1-300 dilution. Several examinations in the last six months show that this normal condition has continued without variation. Headaches and other nervous symptoms persist.

Case II. Age twenty-seven. Laborer. Family and previous history good. Tea slight excess. Tobacco moderate. No alcohol. For six months gas and distress after meals. Bowels regular. Best weight 160, now 154. Physical examination: Vigorous, young man. Not neurotic. Hemoglobin 95%. Reds 5,400,000. Whites 8,000. *Stomach,* fasting contents, 20 cc.: Clear fluid. No free HCl. Contents after test meal 20 to 50 cc.: No free HCl. Total acidity 2 to 4. Pepsin 0. Rennet positive in undiluted contents only. Stools: Normal, except for excess of microscopic meat fiber and connective tissue. Guaiac negative. General improvement under treatment, gained 5 lbs. Stomach contents have remained the same during the last year.

Case III. Age twenty-seven. Merchant. Previous history good. Alcohol and tobacco very moderate. Neurotic temperament. For ten months distress after meals. Poor appetite. Belching of gas. Bowels regular. Objective examination: Well developed and nourished. Hemoglobin 90. Reds 5,400,000. Whites 7,400. *Stomach contents,* after test meal, 47 cc.: No free HCl. Total acidity 1. Pepsin 0. Rennin 0. *Stools:* Normal, except for moderate excess of microscopic meat fiber and connective tissue. Guaiac negative, with meat-free diet. General improvement under treatment, gain of 4 lbs. Several examinations during the last year showed that the achylia remains absolute.

Case IV. Male. Age thirty-three. Carpenter. Previously well. No bad habits. Two months occasional attack of diarrhea with colic. No gastric symptoms. Headache. Fair appetite. Sleeps well. Neurasthenic. Objective examination: Nutrition good. Healthy appearance. Hemoglobin 90%. Reds 4,800,000. Whites 7,000. *Stomach contents,* after test breakfast, 30 cc.: No free HCl. Total acidity 5. Pepsin 10%. Rennet positive in undiluted contents, not in dilutions. *Stools:* Watery, foul, with mucus and excess of calcium soaps, and very many well preserved muscle fibers. Guaiac test negative, with meat-free diet. On careful diet and rest, subjective symptoms disappeared,. When last seen, had no trouble with stomach or bowels for several months. Gained 5 lbs. The achylia remained almost absolute.

Case V. Age thirty-six. Shoemaker. No previous illness except "lung trouble," four years ago, from which he entirely recovered. For one year distress several hours after meals. Gas, sour taste, rarely vomits. Fair appetite. Bowels irregular. Very nervous. Best weight three years ago, 180, now 161. Physical examination: Healthy appearance. Hemoglobin 85%. Reds 5,200,000. Whites 7,500. Fasting *stomach* empty, contents after test meal, 30 cc.: No free HCl. Total acidity 2 to 5. Pepsin 5 to 12%. Rennin positive in 1-1 to 1-10 dilutions. Blood streaks. Fragment of gastric mucosa in wash-water was normal. *Stools:* At times practically normal. At other times thin fluid, with macroscopic residue. Mucus, excess of microscopic muscle fibers. Guaiac negative. Under suitable treatment patient became almost entirely well. Stomach contents remained the same during the last three months. Achylia without stasis.

Case VI. Age forty-three. Merchant. Previous history good, except for considerable alcohol at times. For two months, distress after meals. Afraid of solid food. No vomiting. Headache. Belching of gas. Constipated at times. Many nervous symptoms. Weight three months ago, 165, now 142. *Physical examination:* Well developed, fairly nourished. Sallow. Poor teeth. Hemoglobin 75%. Reds 4,500,000. Whites 8,000. Fasting *stomach,* no residue obtained. After test breakfast 10 to 50 cc.: No free HCl. Total acidity, 2 to 6. Pepsin 0. Rennin positive in undiluted contents only. Occasional blood streaks. Fragment of gastric mucosa found in wash-water was normal histologically. *Stools:* Pasty. Macroscopic meat at times. Mucus, calcium soaps. Guaiac negative.

Patient slowly and steadily improved; in subsequent ten months, gained 8 lbs., but the above symptoms persisted in milder degree. Frequent examinations demonstrated the persistence of the achylia. A suspicion of early cancer was raised by the age, rapid loss of weight, slight anemia and anacidity, but the course of the disease and the persistent absence of blood from the stools have vindicated the diagnosis of simple achylia.

Case VII. Age seventy-three. Retired coachman. Always well till present illness. No tobacco or alcohol used. Occasional attacks of diarrhea in last few months. Stools 2 to 4 a day for 3 or 4 days. No distress or pain after meals. No vomiting. Appetite good. Feels weak and a little short-winded. Has lost 21 lbs., in the last year. *Physical examination:* Well developed. Fairly nourished. Hemoglobin 70%. Reds 4,500,000. Whites 7,000. *Stomach,* fasting contents 5 cc.: No free HCl. No mucus or food. After test breakfast 10 to 40 cc.: No free HCl. Total acidity, 2 to 5. Pepsin 0. Rennin 0. Fragment of gastric mucosa showed slight granular gastritis. *Stools:* Pasty, foul, mucus, with leucocytes and epithelium, occasionally gross meat and connective tissue residue. Excess of fatty acids. Guaiac negative with meat-free diet. General condition steadily improved under careful diet and iron. Fifteen lbs., weight was gained in ten months. Attacks of diarrhea ceased and patient felt well and returned to light work. Frequent examinations showed the continuance of absolute achylia. A diagnosis of cancer was made in this case by another physician, but our diagnosis of simple achylia was verified by the course of the illness.

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STERILITY IN THE MALE: ITS OPERATIVE TREATMENT WHEN DUE TO BILATERAL EPIDIDYMITIS.

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The fact that a certain definite percentage of sterile marriages are due to the fault of the husband is one which, though well known, cannot be too strongly emphasized. Statistics are found in the literature placing this percentage at from seventeen[1] to thirty[2] in large series of observations. It is of great importance, therefore, in all cases of unfruitful marriage which present themselves for advice and treatment, that the husband should receive just as careful and thorough an examination as the wife. In a certain number of men thus carefully examined it will be found that spermatozoa are lacking in the expressed vesicular contents. The demonstration of persistent azoöspermia is of course positive proof of sterility, and though in a few instances this may be due to lesions of the testicle itself, such as syphilis or tuberculosis, in the large majority (90% according to Morton[3]) it has as a basis a previous bilateral epididymitis of gonorrheal origin.[4]

Though the products of the inflammatory process in the epididymis after gonorrheal infection are slowly absorbed, this is seldom possible to such a degree that there is a complete return to the normal condition. It is the rule rather than the exception to find, clinically, nodules of scar tissue in the epididymis which remain permanent. In many cases no functional disability is caused, because this scar tissue is so situated that it does not completely occlude all the tubulæ; spermatozoa can still pass from the testicle to the vas. When this inflammatory tissue is extensive, however, and more especially when it is situated in the tail of the epididymis, where occurs the change from many to a single channel, the obliterating effect is complete. Such a process occurring in each epididymis must inevitably result in absence of spermatozoa from the seminal fluid.[5]

In such cases it has also been proved beyond doubt that motile spermatozoa may be found in large numbers in the epididymis beyond the seat of stenosis,[6] and that the vas itself is patent.[7]

Since but little attention has been paid to the possible operative relief of this condition, it seemed to the writer that a series of observations based on animal experimentation would be of value. The fact that a successful anastomosis between the vas deferens and epididymis is an anatomical and surgical possibility is not new. The most brilliant work on this subject, and the only published instance of its successful application in the human known to the writer, has been done by Martin, of Philadelphia.[8]

It would seem that the reason why operative treatment of this condition has not been more generally employed must rest on either real or supposed difficulties of technique; difficulties due to the small size and delicateness of the parts involved. Therefore, in order to present an anatomical situation as minute as possible, and also because in the work already done, larger animals, such as the dog, have been used, the writer chose the guinea pig. In this animal the vas deferens is about 1 mm. in cross section, or about 2½ times smaller than in the human. The fact that to reach the intra-abdominal testicles of this animal a laparotomy must be done is of no moment under the ordinary asepsis.

The proposition is thus reduced to this question: Is it possible to anastomose the vas deferens to the epididymis, so that the lumen may remain patent for the conduction of spermatozoa, in cases where the anatomical structures are as minute as in the guinea pig? The successful solution of this problem we have found to rest on three main factors: first, the suture material; second, the method of performing the anastomosis; third, gentleness in manipulation.

Following the lead of Martin[9] who used silver wire, the first suture material tried was the finest spring-brass wire, such as is employed in the needle of the hypodermatic syringe. One end of this was filed smooth and sharp and the rest of the wire annealed in the flame up to within about ⅛ of an inch of the sharp end. This was then used as needle and thread combined. The extreme softness of the tissues, however, made it soon evident that no form of wire, however fine and pliable, would answer the purpose. Therefore a strand of the finest sewing silk, No. 000, was divided into thirds and threaded into a so-called Beader's needle.[10] This was found to answer all requirements. It was found that the anastomosis made by splitting the vas longitudinally was more easily performed than after cross section. This longitudinal splitting offers a more extensive surface to be apposed to the epididymis, and is the method illustrated by Martin.

The following is one of the operative protocols:

> Guinea-pig: Weight, 500 gm. Ether. Abdomen made aseptic and opened in the middle line. One testicle delivered, intestines being held back by a cotton tampon. Vas ligated just above its point of origin from the epididymis, care being taken not to include either the spermatic artery or nerve in the tie. Sutures for anastomosis placed as per diagrams. Vas and epididymis opened longitudinally between sutures, which were then tied.[11] Testicle replaced, the same procedure carried out on the other side, and the abdomen closed in two layers. Sterile cotton dressing with collodion. Duration of operation, seventeen minutes.

The result of the operation thus done was examined both (1) anatomically, by means of serial sections made in the usual histological manner, and (2) functionally, by causing ejaculation through electrical stimulation of the hypogastric nerves and subsequent demonstration by microscope of motile spermatozoa.[12]

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[1] Gross: Practical Treatise on Impotence. Phila., 1887.

[2] Lier and Ascher: Beitrage zur Sterilitatsfrage. Zeitschr. f. Geburtsh. u. Gynak., xviii, 2, 1890.

[3] Morton: Genito-Urinary Diseases and Syphilis. Phila., 1903.

[4] Casper: Impotentia et Sterilitas virilis. Munich, 1890.

[5] *Ibid.:* Deutsch. med. Wochenschr., 1890.

[6] Gosselin: Stérilité consécutive à l'épididymite bilatérale. Archiv. gén., vol. ii.

[7] Kehrer: Zur Sterilitätslehre. Beitr. zur klin. u. exper. Geburtsk. u. Gynak. Giessen, 1879, ii.

Martin: Surgical Treatment of Sterility. Univ. of Penn. Med. Bull., vol. xv, 1902–3; also, Am. Med., vol. vii, p. 791.

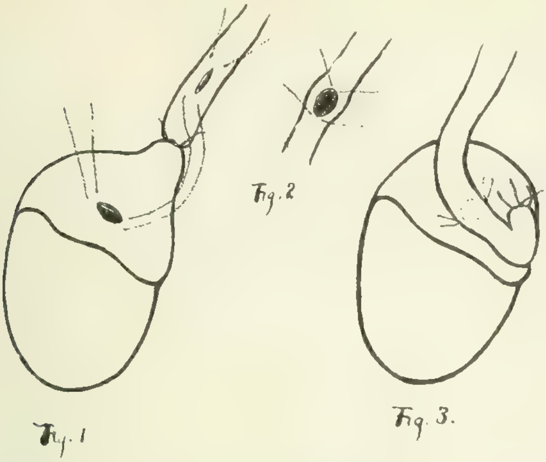
[9] *Loc. cit.*

[10] Thanks are due to Dr. F. T. Murphy for calling this needle to the writer's attention. No. 16, the size used, measures about one quarter millimeter in cross section; but having a comparatively long eye, is easily threaded.

[11] In placing the sutures in the vas care must be taken not to wound its artery.

[12] These nerves run in the mesentery of the descending colon, peripherally from the hypogastric plexus. *Cf.* Akutsu: Innervation der Samenblase. Pfluger's Archiv., xcvi, 1903.

1. The anatomical results are shown by the following photomicrographs:



FIGS. 1, 2, 3 (diagrammatic), show technique of suture. Note, ligature of vas at its junction with epididymis, and that the sutures are so placed in the vas that when tension is made on them the slit-like opening is changed to a more circular form.

2. To demonstrate functional patency of the anastomosis the seminal vesicles were emptied by stimulation of the hypogastrics (as above outlined) at the time of the original operation. At a subsequent date, varying from ten to twenty-seven days,[13] the abdomen was again aseptically opened, ejaculation caused, and the semen examined under the microscope.

Four animals were thus examined with the following results:

Pig No.	Ejaculation. Days post. op.	Motile sperm. by microscope.
2	10	Abs.
4	11	Pres.
5	10 21	Pres.
7	12 20 27	Pres.

The ease with which these anastomoses can be done on man was also demonstrated by the writer on an autopsy subject. Here the use of such fine needles make it unnecessary to penetrate the lumen of the vas.

The above work, added to the evidence obtained from the writings of Martin and others,[14] make it undoubted that such a vaso-epididymal suture with proper technique is a perfectly definite surgical possibility. There remains to be discussed its application to the clinical condition of sterility.

Applied to the human being the diagnosis of permanent azoöspermia due to obliterating epididymitis having been established, this operation has as advocates for its employment three main facts. The first is, that, carefully and intelligently done, the condition after operation cannot possibly be worse than that existing before, even though the patency be not restored. "You can't spoil a bad egg."

Secondly, since the restoration of patency on one side only is sufficient to permit ability to impregnate, this therefore means that the patient has a double chance of cure.

The third fact is that this operation, offering, as it does, practically, the only rational treatment for such a sort of sterility, has been proved feasible both in animal and man.

In the performance of the operation we must of course consider carefully the seat of stenosis in relation to the anatomy of the parts, and in each instance make the union at a place which will as surely as possible create an efficient short circuit. The determination of such a spot on the epididymis can best be made by the hypodermatic syringe. Withdrawal of a drop or two of fluid and demonstration of motile spermatozoa by microscope will show clearly where to make the anastomosis.[15] This point having been settled, the rest of the operation will be found of easy execution.

In summing up, the following points may be emphasized:

1. In all cases of sterility both husband and wife should be carefully examined.
2. Sterility in a certain number of instances is due to the stenosing effects of a bilateral epididymitis.
3. When so caused it may be relieved by an anastomosis between the vas and epididymis below the point of occlusion, as has been demonstrated on guinea pigs (author) and on dogs and man (Martin).
4. Such an operation offers practically no risk to life.
5. Its performance is not difficult, needing only familiarity with the anatomy and pathology, proper suture material and gentleness in manipulation.

I wish to acknowledge the courtesy of the Department of Physiology of the Harvard Medical School, in whose laboratory the above experimental observations were made.

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THE ANALYTIC METHOD IN PSYCHOTHERAPEUTICS. ILLUSTRATIVE CASES.

BY HARRY LINENTHAL, M.D., AND E. W. TAYLOR, M.D., BOSTON.
From the Department of Neurology, Massachusetts General Hospital.

THE attempt has been made during the last year in the Neurological Department of the Massachusetts General Hospital (service of Dr. J. J. Putnam) to systematize methods of mental treatment. The investigations of the past few years have conclusively shown that much may be expected from a judicious and painstaking application of methods of mental treatment, quite apart from the use of hypnotism. The recent book of Dubois on this subject, and various papers by Freud, and the comprehensive work of Janet[1] and others[2] will no doubt have a wide influence in rationalizing a method of treatment which has too long been regarded as without the pale of therapeutic effort.

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[13] Massazza (*cit.* by Furbringer) has found that spermatozoa disappear by the ninth day following castration. This was shown on various animals.

[14] Bogoljuboff: Arch. f. klin. Chir., Bd. lxxiv, no. 2.

[15] Posner and Cohn: Zur Diagnose und Behandlung der Azoospermie. Deutsch. med. Wochenschr., 1904, p. 1062.

[1] Prof. Janet is at the present time delivering a course of lectures on Psychotherapeutics, in the Lowell Institute Course in Boston, a further indication of the general interest which the subject is exciting.

[2] Under the care of Dr. J. J. Putnam and Dr. G. A. Waterman, admirable results have been obtained, through psychotherapeutic methods, in patients admitted to the hospital (neurological ward). See BOSTON MED. AND SURG. JOUR., 1904, cli, 179, and Putnam, Jour. of Abnormal Psychology, 1906, 1. See also Barker Am. Jour. Am. Sc., 1906, cxxxii, 499.

A fundamental difficulty in psychotherapeutics up to this time has been a lack of method. With this in mind the attempt has been made at the Massachusetts General Hospital to select certain patients presenting themselves at the Out-Patient Department, and to treat them in a systematic and rational manner, without the use of drugs. The results up to this time have been so far encouraging that it is expected a more complete trial will be given the methods this coming winter, whereby it is hoped sufficient data may be obtained for a somewhat comprehensive report.

It will not be questioned by those familiar with an ordinary neurological out-patient service that a very considerable number of patients appear whose ailments require not the use of drugs or of mechanical means of treatment, but rather analysis of the disordered mental state, and treatment of the condition based on the results of such an analysis. It is to this class of patients that our efforts have up to this time been directed, and with results which unquestionably justify the further prosecution of work along the same general line.

We have no desire at this time to enter into detail regarding the methods employed. The essential feature is, first, an analysis of the mental states underlying the condition as it appears on the surface, and an attempt by explanation and reason to allay the fears to which the patient's false interpretation of the condition has given rise.

As examples of a type of disorder which may be reached by the methods employed, we quote the following cases. A large number have been treated more or less completely by similar means, but these illustrate better than others the principles involved and the excellent outcome of the treatment is certainly ample justification for their publication.

Case I. Miss C, age thirty-four, single, suffers from recurrent loss of speech of which she gives the following history:

For many years, especially during the winter months she has been subject to colds with a tendency to hoarseness. About one year ago she had one of these attacks of hoarseness with some cough, apparently a laryngitis, when she suddenly lost her voice completely and this condition lasted for several days. Since that time she has been having recurring attacks of loss of voice, coming on apparently without definite cause. These attacks have become more and more frequent and of greater duration. She has been coming to the clinics of the Massachusetts General Hospital for the last six months. The note from the Laryngological Department on the first examination reads: " Laryngòscopic examination shows normal movement of the cords. Patient phonates with mirror in position but stops when the mirror is withdrawn." The diagnosis of " hysterical aphonia " was made.

The application of the faradic current to the throat and other means would in a very short time restore the voice. She would leave the hospital apparently cured, only to come back in a few days as bad as ever, not being able even to whisper. She was thus coming regularly for electrical treatment getting only temporary relief; her condition grew worse and she became unable to use her voice the greater part of the time. Beyond general nervousness and irritability she complained of no other symptoms.

Physical examination was entirely negative. All superficial and deep reflexes were normal. There was no anesthesia and no limitation of the visual field.

It was thought desirable to probe to the bottom of this case, to find out, if possible, what was the meaning of the aphonia coming on in an otherwise healthy, though nervous, young woman. With this end in view we questioned her closely as to her previous life, as to emotional traumas and as to her family relations. The patient was very timid and reticent. She seemed to resent greatly this scrutiny into her life and the fact that notes were taken while talking with her disturbed her very much. She answered in monosyllables and volunteered very little information, although it was quite evident that there was something in her mind about which she did not wish to speak. She was assured that it was not mere curiosity that prompted these questions but that in order to effect a permanent cure we must have her confidence.

Two days later the patient came again to the hospital, unable to speak. Her voice was restored by the faradic current, and much against her will she was retained and questioned again. Very uncommunicative at first her confidence was finally obtained and she told us of her trouble. The great misfortune of her life, she told us, was that a brother of hers, to whom she had been greatly attached, had become insane and was in an insane asylum for several years where he recently died. This unfortunate episode in her family she regarded as something that must never be spoken of. It was something which the family was ashamed of, and about which no one must know. She had undergone a struggle before she decided to speak to us about it.

Now that the ice was broken, however, she became more communicative. While her brother was in the asylum it was her painful duty to visit him once a month. Each visit was to her the most trying ordeal, and it took several days before she could get over the depression which the sight of her unfortunate brother produced. On several occasions her brother became maniacal while she was present; on one occasion particularly he attacked the attendant while she was there, and was handled very roughly in consequence. Further questions elicited the fact that frequently the visits to her brother were made while she was suffering from an attack of laryngitis and hoarseness. She had a particularly severe attack of hoarseness on the visit when her brother attacked the attendant.

Before leaving, the patient assured us that she had not felt so well for a long time, the telling of her troubles gave her a great deal of relief, " as if a burden were taken off her shoulders."

Freud has in a number of communications of recent years pointed out the important rôle which suppressed mental states play in the activities of our daily life, the extent to which they enter and determine the phantasmagoria of our dream states, and the prominent part they play in the evolution of hysteria. For various motives, either because of the painfulness of the states themselves, or owing to the fact that these states do not harmonize with our moral convictions or with our social environments there is a prevalent tendency to suppress them. They do not however remain dormant but profoundly influence our activities and give rise to a variety of manifestations. In his "Psychopathology of Everyday Life," Freud points out that such commonly occurring phenomena as the forgetting of familiar names, slips of the tongue and of the pen, maladjustments, and accidental and purposeless acts, all are the manifestations of subconscious motives.

But this suppression of mental states plays a far greater rôle in the etiology of hysteria. The patient has an unpleasant emotional experience which for one reason or another he suppresses. The cerebral excitation set up by the emotion not finding its normal path of discharge, because the patient forces that emotion from his conscious attention and does not react upon it in the normal way, will discharge itself in an abnormal path, will become "converted" into a somatic phenomenon, and give rise to an hysterical symptom. This process Freud designates as "hysterical conversion."

The particular symptom into which the emotional excitation will become "converted" depends on a variety of conditions. Co-existence in time is a prominent factor in this conversion. If at the time of the original trauma a certain sensory or motor state existed that state will tend to recur whenever the emotion is aroused. But owing to the effort of suppression the emotion will ultimately remain subconscious while the associated state will recur as an hysterical symptom. The association between the suppressed emotion and the converted symptom need not necessarily be that of co-existence; it may be a very trivial chance association, or the somatic manifestation may be but a symbolic representation of the suppressed state as, for instance, nausea and vomiting as a result of moral degradation and disgust.

In our case the loss of voice is the "hysterical conversion" of the large number of emotional traumas which the patient sustained on her visits to the asylum. Social prejudice was the motive for the suppression of these emotions. While sustaining these traumas the patient frequently suffered from hoarseness, particularly at the time that her brother, in a maniacal state, attacked the attendant. Thus the emotions and inabilty to speak were associated and the latter became the converted somatic phenomenon of the suppressed emotional state.

It is still further possible that the aphonia has, in this case, a symbolic meaning. The sole aim of the patient was to prevent what she regarded as a family stain from gaining publicity. This must be kept secret at all costs. She must never refer to or speak of her unfortunate brother, hence the aphonia.

Once the case was analyzed the therapeutic measures were to relieve the patient's mind of the popular prejudice that exists about insanity. She was given to understand that insanity is a misfortune and not a crime, that there is no more shame connected with it than there is with physical disease. Moreover, the condition was fully analyzed to her and in simple language she was given to understand how her trouble originated.

The aphonia never returned[3] after the first explanation and although she came regularly to the clinic for several months she did not lose her voice once. On one or two occasions she came in with hoarseness but no loss of voice. The condition cleared up completely, and now after ten months the patient is well and considers herself cured. She assures us that she has never felt so free from nervousness and irritability as she does now.

The case derives its interest from the facts that the patient was temporarily relieved of her aphonia by various relatively simple means, but that it occurred with increasing frequency until a rational cause for its occurrence was discovered, and explained to the patient. From that time on the relief has been essentially permanent.

Case II. Mrs. B, a young Jewess, of twenty-eight, came to the neurological clinic of the Massachusetts General Hospital complaining of peculiar "nervous attacks," of severe headaches, and of a variety of nervous symptoms which "made existence almost unendurable." According to her story she was perfectly well till one year ago. The attacks which during the year have, in spite of treatment, increased in severity and frequency are as follows:

The attacks most often come in the morning about twenty minutes after rising. She begins to feel "queer" and finds herself "shaking all over." A few minutes later she hears noises of ringing bells in her right ear; her vision, especially of the right eye, is blurred and she sees stars and flashes of light in front of her. She feels very weak and restless. The house is too small to hold her. She leaves the house and walks up and down the street for about twenty minutes when the attack usually passes off. On returning to the house she feels weak but is able to attend to her work. She never loses consciousness during the attack, and she knows and recognizes her surroundings, although she states that things look queer to her "as if they were far away." From two or three a week, these attacks have increased in frequency so that she now has them almost every day. In the intervals of attacks she suffers from severe occipital headaches which have not been relieved by glasses.

Physical examination of the patient was entirely negative. All the superficial and deep reflexes were present and normal. There were no motor or sensory disturbances. Her field of vision, by rough test, was normal. Hearing was good and equal on both sides. Sense of taste and smell normal.

On careful inquiry the following history was obtained. About a year ago the patient and her husband were awakened in the middle of the night owing to a fire which broke out in a neighboring house. Partly dressed, in a dazed condition, she was put out in the street and was much terrified by the flames and smoke which confronted her. In a state of collapse she was taken to a neighboring house where she rested for a few hours and later was taken home. She had become somewhat composed but she felt "that the severe fright was bound to leave some ill after effects." One morning about three weeks after the accident the patient, without any apparent cause, had one of the attacks described above, and in spite of medical treatment she has been having these attacks since with increasing frequency.

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[3] Since these notes were written, a temporary relapse occurred due to an emotional strain but the aphonia was easily overcome by the simple process of explanation and an appeal to reason

In addition to the attacks and headaches the patient complains that since the fright she is not the same as she used to be. Her character has undergone a radical change. While formerly rather calm and composed, she has become extremely irritable and easily annoyed by trifles. Things and persons formerly of great interest have ceased to attract her. She has become indifferent to her friends to whom she was formerly much attached. While formerly fond of reading she is unable to read now as she cannot fix her attention for any length of time.

For about six months after the fire the patient's sleep was greatly disturbed by distressing dreams. Very frequently she lived through in her dreams the distressing experiences of the memorable night. During the last few months, however, her dreams have been commonplace, concerned as they are with the affairs of her daily life. Very frequently she wakes in the morning knowing that she has had a distressing dream but is unable to recall the content.

It is apparent from an analysis of the attacks that they are directly related to the emotional shock of the night of the fire. The attack, it may easily be seen, is an exact reproduction of the original trauma. During each attack she lives through the exact sensory-motor and emotional states of the original fright, without recognizing them. The feeling of queerness, the lack of the feeling of reality which she experiences at the beginning of each attack, reproduce the semi-waking hypnoidal state she was in on that night when she went out in the street. The noises in her ears, the ringing of bells, are a reproduction of the bells and noise of the fire engines. The blurred vision and the stars which she sees reproduce the smoke and the sparks which confronted her as she emerged from the house. So detailed is the reproduction that even the motor phenomenon of going out into the street is reproduced at each attack.

The emotional tone of the attack is a vague, general, objectless fear. We have here a phenomenon common in hysteria, the dissociation between the emotional tone and the ideational content. The latter remains subconscious while the former comes to the surface manifesting itself as vague fear. Often the fear attaches itself to some indifferent object and thus gives rise to various phobias. Such a dissociation between the emotional tone and content is a sufficiently common phenomenon of dream states. An intense emotion of waking life will repeat itself in a dream state but with an entirely different content. The emotions of the dream have no relations to the representations, to the phantasmagoria of the dream. They do not belong together. The emotional tone of the waking experience is transferred to the otherwise indifferent dream representations.

In view of the recent work that has been done on hysteria, in this country, notably the work of Sidis and Prince, the analysis of such a case is perfectly clear. The patient lived through an emotional experience which produced a severe shock. At the time of the trauma she was in a semi-waking state. The hypnoidal state and the emotional trauma prevented a complete synthesis. The traumatic experience with its sensory-motor manifestations remained dissociated from the rest of the patient's mental life. This complex of experiences because of its dissociation remained removed from the inhibitory influences of the rest of the mental life.

Sidis has pointed out how these subconscious states because of the low type of their mental organization become automatic and tend to recur. Their dormant activity may be awakened by the stress of an emotion or by the association of ideas, and when thus awakened they react in a stereotyped manner. The entire group of sensory motor experiences characterizing the original trauma is reproduced and the patient lives through subsconciously the original experience without realizing its meaning.

To have established beyond all doubt the existence of the subconscious states in this case it would have been necessary to put the patient in hypnosis, to artificially induce an attack and thus come directly into communication with the subconscious. Unfortunately, the conditions in an out-patient clinic are not favorable to such a procedure; moreover, for the therapeutic result such a procedure was entirely unnecessary. The cure of this case was most satisfactory, and to the patient it appeared nothing short of the miraculous. The whole condition was analyzed to the patient. The meaning of the attacks was explained to her in a very simple way. The result surpassed all expectations. The attacks have not recurred after the first talk we had with the patient. The patient was seen quite often for several months with a continuous and marked improvement in her general condition. The headaches have disappeared and she has become less irritable and more like her former self. A few weeks after the treatment was instituted the patient's husband met with a very serious accident and he was for a time in the hospital in a critical condition. But even under such distressing circumstances the attacks did not recur, and the patient herself saw in that the sure sign of her complete recovery.

There seems no sufficient reason why a method of this sort should not be more extensively used in out-patient medical work. The intelligence of some patients renders the task a difficult one no doubt, but in the great majority of cases a little perseverance will accomplish the desired results. The patients themselves quickly learn to realize the value of the suggestions made to them in the course of the analysis of their conditions, and appreciate also the time given and the effort made by the physician in their behalf. A very large proportion of the patients are amenable in greater or less degree to this type of treatment, and although many still clamor for drugs it is not to be doubted that a relatively small amount of effort directed toward their education in these matters will easily remove this preconceived idea to the benefit of all concerned.

The immediate need of the future is to rationalize and at the same time systematize such methods of treatment. It is equally essential that certain men should perfect themselves in dealing with abnormal mental states by means of mental methods.

We hope to supplement this merely preliminary statement by a more detailed record of results when our experience has broadened sufficiently to make such a report of value.

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Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., BOSTON,
AND
W. D. HALL, M.D. BOSTON.

TUBERCULOSIS OF THE CONJUNCTIVA.

Villard:[1] The existence of this affection was established experimentally by Langhans in 1867, and the first clinical observation was reported by Koester in 1873. During the next ten years Haab (1879), Hesseling (1883) and Luc (1883) made important contributions to the subject. Thus far the diagnosis depended upon clinical appearances or a histological examination, but Parinaud (1884) brought in animal inoculation as a factor in establishing the diagnosis. Thus far there have been possibly 150 cases reported and 70% of these were in individuals under the age of twenty. The author has found the disease more frequently in males. Its distribution is quite general although unusual among the negroes. It is a matter of comment that patients affected are unusually robust and in the enjoyment of excellent health. Trauma should not be considered as an etiological factor except in the case of direct inoculation, of which several examples are cited. The lesion is produced by the penetration and development of the bacillus of Koch, the mode of entrance being variously explained. When of endogenous origin, through the intermediary of the blood current, it may be considered as metastatic and secondary, but this does not apply to all, as the secondary affection is not the rule, for, according to Villard, it should be considered primary in three fifths of published cases. Vieusse and others ascribe it to an extension along the lachrymal passages of an unrecognized nasal tubercular condition. The number of such cases is probably small. Direct infection, borne from without (exogenous), is a plausible explanation, but, in all cases, is not warranted by facts, as mere contact is usually insufficient, as, also is the case, when the tuberculous material is deposited in the lachrymal sac or gland, more or less injury to the tissue being necessary. Clinically this initial trauma is apparently absent in the majority of cases. Burnett explains the rupture of epithelial barrier by the presence of phlyctenules, but if so, why is lesion not located at limbus more frequently? Fuchs believes the traumatism as microscopic and due to possibly forgotten foreign bodies, which seems likely, as the position of the tubercular lesion is usually where a foreign body under the lid is frequently found. This condition does not differ materially from that of other mucous membranes. If isolated there are the polynucleated giant cells at the center with epitheloid cells at the periphery, the latter being surrounded by a zone of embryonic cells, often of considerable extent, and where there exists ulceration, there is a fibrinous zone containing leucocytes, then a layer of ordinary embryonic cells, and then a deeper layer of tubercles in different stages of evolution. The early symptoms are those of a mild catarrh that does not yield to treatment but steadily progresses, and finally is complicated with enlarged pre-auricular glands. The nodules are usually upon the palpebral conjunctiva, the number being modified by the ulcerative process, are round or oval, varying in size and color, but apt to be grayish. The ulcerations which follow the caseation of the nodules denote an advanced stage of the disease and they may attain the size of a pea. They are irregular in outline, have an indurated base, and are grayish yellow in color. The progress is steadily onward without the slightest tendency to cure. The corneal appearances may be simply a cloudiness arising from a tubercle at the limbus; or a scattering of fine granules in the tissue; or a vascular pannus; or ulceration leading to perforation. Tubercles of the bulbar conjunctiva may lead to perforation also. Extension to the lachrymal sac is not common, and this is also true as regards the nasal canal.

Sattler in 1891 proposed a classification from the clinical point of view: the ulcerative, miliary, granulation and lupoid forms. In 1896 Mitvalski adopted, practically, the same, as did Eyre in 1897, although the latter added a papillomatous variety. In 1900 he divided the various forms into two classes: the ulcerative with caseation; and the inflammatory new growth formation, the latter being subdivided into four secondary varieties,—the nodular, granulomatous, cockscomb and the pediculated. Vieusse suggested in 1899 the ulcerative, diffuse and polypoid. These different varieties may be considered as modifications or different stages in development, the miliary and ulcerative being the most frequent, and the others more or less rare. The prognosis may be considered as very grave, the tendency being to extension and destruction. Spontaneous cures have been reported, and if this condition is to be considered as an attenuated form of infection there seems to be some reason for optimism. The diagnosis, which is not always difficult, rests upon clinical appearances and experimental research. It may, however, be mistaken for blenorrhea, trachoma, epithelioma, chancre, gummata, lepra, Parinaud's conjunctivitis, granulomata, lymphomata, the pseudo-tubercular forms due to caterpillar hairs and lupus. If clinical appearances are deemed insufficient, experimental methods may be resorted to, involving histological examination of tissue,—the seeking the Koch's bacillus, the injection of tuberculin, the sero-reaction or implantation of fragments of tissue in animals. The treatment, which may be medical or surgical, or both, should be energetic. Treatment in form of ointments has not proved satisfactory and tonics and constitutional remedies should only be considered as of secondary importance. Injections of tuberculin of Koch (T. O., or T. R.) have given results sufficiently favorable to warrant their continuance but not of sufficient moment to be advised in every case. In the hands of one who is not an expert they are apt to be dangerous and the use should be reserved for extensive lesions covering large surface where the use of knife or cautery would entail undue loss of tissue. The surgical treatment, which may be either curetting, excision or cauterization, should of course be conducted with the utmost thoroughness. The monograph is followed by a very complete bibliography.

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[1] Annal. d'Oculist., April and Aug., 1905.

OPHTHALMIA NODOSA.

E. Valude[2] by curetting was able to obtain sufficient corneal tissue to demonstrate by the microscope a fragment of hair of a caterpillar which infests pine trees in a certain department of France. The hair was abundantly provided with fine barbs directed at a rather acute angle towards its point. Very quickly inflammatory symptoms of the surface of the globe supervened, which was followed by an iritis, mild in type. In certain parts of the cornea were noticed very small, poorly defined, grayish white points, some of which slightly elevated and constituting true nodosities. It was from one of these that the specimen was obtained. It is to Saemisch that this type of ocular inflammation owes its name. The literature is meager. Pagenstecker, in 1883, showed some preparations of pseudo-tuberculous nodules of the iris and conjunctiva, containing giant cells, before the Heidelberg society. Becker, in 1892, described somewhat similar appearances, often finding the offending hair in the center of a nodule. Others have reported cases, but one of the most satisfactory papers upon this subject is by Lawford.[3]

THIGENOL.

Fortunati, A.:[4] This therapeutic agent which has been under observation for about three years it is thought will prove a valuable substitute for ichthyol. It is a soda salt of a sulfo-oil, prepared by treating almond oil with sulphuric acid, and appears as a dark brown, odorless, almost tasteless liquid, soluble in water, alcohol and glycerin and easily incorporated with lard, vaseline, lanolin, etc. It is not affected by light and does not permanently discolor the skin or stain fabrics. It is a resolvent, analgesic, antiseptic and keratoplastic. In eczema of the lids it is to be recommended as a salve (5%–10%) at night. In the various forms of blepharitis the strength should be increased (10%–60%) and in severe cases of the ulcerative type cloths smeared with the ointment may be left on all night. Such lids should be carefully cleansed in the morning with an alkaline solution, after which the pure drug may be applied locally. The results have been found to be very satisfactory. Corneal conditions, especially deep ulcers, yield to solutions in glycerin, (5%–50%), the pain being relieved and the base cleaning rapidly. Conjunctival conditions do very well under weaker (3%–5%) solutions.

Alypin,[5] an anesthetic which has attracted considerable attention during the last six months, is a synthetic compound and is a derivative of glycerin. It is otherwise known as a monochlorhydrat of benzoyl. It has been used in solutions varying from 2% to 10% upon the cornea and has been found to have in 2% solutions about the same effect as cocaine. Solutions of this strength have no influence upon either the pupil or accommodation, neither does it affect the palpebral aperture. It does not affect the corneal epithelium or blood vessels, as a rule, although occasionally a more or less persistent hyperemia has been noticed. In solution it may be boiled without injury. It is less toxic than cocaine and should be less expensive. The smarting which follows the instillation of cocain is said to be absent. Von Michel, of Berlin, who has used it as a 5% solution, believes that it acts directly upon the minute nerves of the cornea and has noticed, after the use of six or more drops, that the patient complains of a white fog due to fine, gray, homogeneous dots located in the deepest layers of epithelium and only visible upon magnification. There is moderate mydriasis in the course of half an hour, due to direct action upon the sphincter of the iris but neither the accommodation nor the tension is affected. Ohm prefers a 3% solution for local use and a 20% solution for subcutaneous injection.

NEW EXPERIMENTAL RESEARCH IN ASPERGILLUS KERATITIS.

Rollet and Aurand,[6] commenting upon the rarity of affections in man produced by molds, state that as early as 1842 they were found in the respiratory passages of animals, especially in birds. A few months later Bennet reported the first case of pseudo-tuberculosis in man. Virchow in 1856 published observations on human pneumomychosis and since then Politzer (1870) mentions otomycosis. About the same time Grohe and Block, while studying human aspergillus, obtained positive results by inoculation. In 1881 Koch proved A. fumigatus to be pathogenic. Upto the present there have been published only sixteen undoubted cases of keratomycoses. Leber published the first case in 1879, quickly to be followed by Fuchs, Uthoff and others. This affection, always due to agricultural trauma, appears as a cup-shaped alteration with a yellowish center, followed by a grayish projection resembling a phlyctenule, but differing in being hard, dry and friable. In about a month a line of demarcation forms with subsequent sloughing and sometimes perforation. In nearly all cases the A. fumigatus is present. The authors have experimented with various forms and conclude that the A. fumigatus is very pathogenic for the rabbit's cornea; the A. flavus is equally so; the A. oryzæ is pathogenic; the A. niger moderately so; likewise the A. wetii; the A. candidus moderately; the A. glaucus, ostianus, maximus, clavatus, variens, and noves not at all for the rabbit.

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[2] Annal. d'Oculist., July, 1905.

[3] Trans. Soc. U. K., vol. xx.

[4] Annali di Ottalmologia, xxxiv, 7, 8.

[5] Ophthalmol., 1906.

[6] Rev. Gén. d'Ophthal., Dec., 1905.

UNILATERAL MYDRIASIS, AN EARLY SYMPTOM IN TUBERCULOSIS.

Bichelonne[7] had a patient in whom this symptom had existed for a few weeks. Direct and consensual reactions normal, likewise reactions to accommodation and convergence. The palpebral opening slightly enlarged. Instillation of cocaine caused but slight supplementary dilation and eserine was without effect. The dilatation was of spasmotic due to irritation of the sympathetic. The patient claimed to be in good health and had an excellent family history, but a physical examination disclosed dullness at the right apex. Although the question may still be considered as open Morax and others are positive that physiological anisocoria does not exist. Changes in visual acuity and fields and errors of refraction never cause difference in the size in the pupils, and if it does exist it should be considered pathological. When, therefore, the most frequent causes of unilateral mydriasis, such as trauma, syphilis, affections of the nervous system, etc., have been eliminated it is well to consider the question of commencing pulmonary or ganglionic tuberculosis. The relations which exist between the sympathetic and the pleura, pulmonary and cervical ganglia, and pulmonary tissue, and likewise the relations existing between the lower cervical and upper thoracic sympathetic ganglia, and the dome of the pleura and apex of the lung, may explain how slight tubercular deposit in these regions may excite sympathetic fibers and cause mydriasis. It is claimed that this symptom is present in 97% of early cases of early tuberculosis.

A NEW OCULAR SYMPTOM OF BASEDOW'S DISEASE.

Teilleis[8] mentions a brownish discoloration of the lids which he has observed in three cases which appears to be spread uniformly over the skin, of the upper and lower lids, ending at the supra-orbital ridge above and the orbito-palpebral furrow below. It is an early symptom which may become less noticeable as the disease advances, and is analogous to other pigment anomalies frequently observed during the course of this disease. Jellineck and Rosen, while working upon the chemistry of the blood found in subjects of this condition differences in the coloring power and the proportion of iron in the blood. When the number of red corpuscles were normal and the porportion of iron more or less high, they found always a relatively higher proportion of hemoglobin which seemed to show that an increase in coloring power of the blood was rather due to the hemoglobin than to the amount of ferric material contained therein. Schroetter, who has seen extensive but irregular distribution of pigment in a case of this kind, is inclined to ascribe these peculiar pigmentary manifestations to anomalies in the secretion of the thyroid gland. Möbius, who is opposed to the nervous theory, claims that Basedow's disease depends upon a disturbed thyroid function, hence exophthalmic goitre would appear to be a thyroidean condition,—the reverse of myxedema, which may supervene when the thyroid has been destroyed. It is difficult to deny the influence of the nervous system in the pathogeny of the disease, and the question might arise whether or not the nervous symptoms are due to thyroid intoxication secondarily.

RADIUM.

The current issues of *Ophthalmology* contain several interesting abstracts on this subject. Darier,[9] with the idea that the Bacquerel rays, like the x-rays, had powerful action upon neocells, and imperfectly organized tissues, endeavored, to resolve, melt and re-absorb a traumatic intra-ocular hemorrhage by placing a packet of the substance (1 gm.), simply wrapped in thin paper upon the eye and another, likewise of 240 U., upon the temple, both being kept in place for twenty-four hours by a gauze bandage. Vision improved rapidly, the blood absorbed and pain and photophobia disappeared. To a second case, which had been treated with iodide of sodium, applications of radium of the same strength were made use of but without satisfactory results; therefore after one week the sodium salt was resumed. In a third case, an epileptic who had retinal hemorrhages, after several months' treatment, radium of 240 U. was used twenty-four hours each day, and during three hours a tube of 7,000 U. was used without much effect upon the hemorrhages, although the epileptic attacks, which were the result of nervous shock, did not recur. In a rheumatic iritis with exudate in the anterior chamber, marked analgesic effect was noticed, although its application was without benefit as regards the plastic material. It proved equally efficacious in supra-orbital neuralgia accompanying specific choroiditis. In an attack of ophthalmic migraine with scintillating scotoma all symptoms were relieved by the application of Br. Ra. 500,000 U. within two minutes. Emil Bock[10] in discussing the action of radium upon the eye states that the changes are inflammations of the conjunctiva, cornea, iris, lids with falling out of lashes and ulceration. These alterations may disappear after a time or there may be a central retinitis for several months, after which atrophy of the nerve may develop. These changes are due to necrosis of the epi- and endo-thelia of the anterior segment of the globe. It has a toxic action upon the nerve cells of the retina producing vacuoles and disintegration. The visual purple is not affected. The action of radium is not influenced by either the presence or absence of the lens. The eyeball should in all cases be carefully protected. It will not raise vision in amblyopia nor will it give p. l. to the blind eye as it simply produces fluorescence in the lens and retina which then becomes a luminous source perceived by the retina. Darier [11] treated a case of superficial serpiginous epithelioma which had extended from the ala of the nose to the upper lid, first with the cautery and then with chromic acid and methyl blue, and afterwards by application of R. (5 mm. of the sulphate, 500,000 U. to each lobe of the tumor, the drug being held in a copper plate by enamel varnish). A second application was made three days later, and after ten days there remained only a red surface with slightly eroded points. The applications were continued, however, every eight days and there was a cure within a month. R. is now employed in much higher intensities than formerly and usually in the form of the bromide salt, which is thought to be pure. This is difficult of verification except by the electroscope, although by applying it to the skin of the forearm in a proper envelope for from five to twenty minutes and watching the reddening effect and the number of days (eight to twenty) before the red spots appear one may determine its activity. In a glass tube the loss of power may be 90% and mica, celluloid and caoutchouc, although they absorb less, are soon altered. Beck, of Chicago,[12] reports two cures of trachoma in the subacute form, with improvement in another which was acute. Falto [13] reports cures in two cases of severe trachoma and one of follicular. Kirchner [14] applied 1 mg. of R. bromide to a recurring cancroid of the lid for from fifteen to twenty-five minutes every two or three days. Although improvement was not noted at first, ultimately the entire growth was converted into a delicate, soft, slightly congested scar tissue. The action is more intense upon young, embryonic plant and animal tissue than upon healthy tissues. Darier in another interesting article [15] states that although in 1903 he could not form positive opinions as regards benefit derived from R. treatment in trachoma, especially as cases of cure reported by Cohn had been doubted, he was encouraged by results obtained to continue in the same direction. He mentions some results obtained by Dr. Thielman who used 2 mm. of R. in a glass tube, incontact with the everted lids, five to ten minutes daily, the cornea being protected by a shell of glass or lead, in which there was a remarkable subsidence of granules on the lower lid after a week of daily application and in ten to fifteen days as regards the upper lid. There was entire disappearance on the forty-sixth day accompanied with hyperemia but with no secretion, or cicatrix resulting. This new therapeutic agent is evidently to be used with caution, especially in the vicinity of the eye, which should be so protected by layers of lead, thick enough to arrest all direct rays and so curved as to arrest all oblique or secondary rays.

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[7] Annal. d'Oculist., Oct., 1905.

[8] Arch. d'Ophthal., May, 1905.

[9] The Ophthalmoscope, June, 1905.

[10] Allg. Wien. Med. Zeitung, 1905, nos. 9–11.

EXTRACTION OF CATARACT IN THE CAPSULE.

Major Henry Smith, M.D.,[16] whose personal experience extends to over 11,000 cataract extractions in India, advocates strongly the advantages of extraction in the capsule. His first 2,000 operations were generally performed by the orthodox method of capsulotomy. The remaining 9,000 operations were extractions in the capsule. From May 31, 1904, to May 31, 1905, he performed this operation 2,616 times, with first-class results in 99.27%; second class results in 0.38%; failures in 0.34%. The operation is not indicated in children or in cases of atrophic cataract, likewise in the semi-gelatinous variety which may be recognized by a peculiar bluish tinge of the lens, for in the latter, the capsule is apt to be weak and liable to become ruptured during the operation. He advises a liberal sized upper incision, entering at corneoscleral junction, as far back as safety will permit, and emerging from the cornea half way between a normal pupil and the corneal margin. The speculum is then removed; the assistant hooks up the upper lid with a large strabismus hook, drawing down the lower by the thumb. He then places the curve of a strabismus hook upon the cornea, at about the junction of the lower and middle third of the lens and a spoon over the upper lip of the wound. The hook is then pressed directly down, neither towards nor away from the wound, keeping up steady pressure until the lens is nearly out, when, still maintaining counter pressure with the spoon, the lens is gently tilted out with the hook. Complications are met as they appear, by usual methods. Of these 2,616 cases the capsule ruptured in about 8% but it was possible to remove it with its contained lens matter in about one half. There was an escape of vitreous in 6.8% but in only three cases did anything unpleasant happen. Ordinarily only a bead presented, the exceptions being in very nervous patients who would probably have behaved badly during any operation. Two thousand four hundred and ninety of these cases were extracted in their entirety in the capsule with but two cases of iritis. In 151 cases with capsulotomy and in 112 in which it was necessary to leave the capsule behind, iritis occurred in about 5%. The nine absolute failures were in all cases from suppuration. The cases done this year were all with an iridectomy, hence there was absence of prolapse of the iris, although in former years it was dispensed with. In Major Smith's opinion, extraction in the capsule practically eliminates iritis, and when it does occur it is not so much due to the bruising that the iris sustains by the passage of the lens or by the iridectomy as to the lens material and fragments of capsule left behind and especially difficult of removal when no iridectomy has been done. He concludes by stating that it is not an operation for the inexperienced.

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[11] La Clin. Ophtal., July 25, 1905.
[12] Ann. of Ophth. 1905.
[13] Wien. Med. Wochenschr., July 29, 1905.
[14] Die Ophth. Klin., No. 10, 1905.
[15] La Clin. Ophthal., Jan. 10, 1906.
[16] Knapp's Arch., xxxiv, 6, 1905.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-first Annual Meeting, Held at Hot Springs, Va., May 22, 23 and 24, 1906.

The **President, Dr. Richard B. Maury**, Memphis, Tenn., in the Chair.

The association met at the Club House of the Homestead Hotel, and after the transaction of routine business, the reading of papers was begun.

IS GYNECOLOGY DEAD? OR GYNECOLOGY AGAINST OVERDONE AND MISAPPLIED SURGERY.

Dr. E. C. Gehrung, of St. Louis, Mo., protested against unnecessary, if not criminal, surgery that had been and was still being practised in cases that could not be benefited by the knife, and in others that could be as well or better treated by other and less radical means. In many of these latter, the knife might obtain a quicker and perhaps just as good result, yet at the cost of mutilation. Many women complained of various kinds and degrees of suffering, yet a most careful examination did not disclose anything on which to operate. Such women might be treated gynecologically with good results.

All uterine displacements should be considered in the light of ptoses and herniæ. When the keystone between the pelvis and abdomen was displaced, abdominal ptosis must follow. These enteroptoses might be of minor degree only, or may extend to the kidney or other abdominal organs, and thus produce symptoms for which the simple uterine displacement would not account satisfactorily. The replacement of the pelvic organs frequently relieved the symptoms of these ptoses.

Concerning forward displacements, the situation was altogether different. Since anatomists said that anteversion and anteflexion were the normal positions of the womb, the pathologist denied pathological effects to antedisplacements, and the practitioner was only too happy to ignore a state of affairs for which the means of relief were so imperfect apparently and so difficult to apply, with so little or no results in prospect. Many of these displacements got well within a comparatively short time, while in others the support or pessary must be worn a long time. The wearing of a pessary he considered as much a cure as the wearing of a cicatrix. The author had obtained excellent results in the relief and cure of symptoms and diseases, which had been declared utterly incurable by many gynecologists by mechanical and other means. His results in cases of antedisplacements and retrodisplacements have been extremely satisfactory.

DISCUSSION.

Dr. George M. Edebohls, New York, said that his views in regard to anteversion and anteflexion of the uterus had undergone radical changes since he began to practise gynecology. Whenever he found on examination that the uterus was anteverted or anteflexed, it led him to suspect that he had to deal with excessive mobility of the uterus; in other words, it was the therapeutic equivalent of retroversion of the uterus, and he treated it like a case of retroversion, where the uterus was flexible or non-attached, by shortening the round ligaments, and invariably his efforts had been crowned with success.

Dr. J. Riddle Goffe, New York, expressed himself as having been convinced for many years that anteversion was a normal position of the uterus, and he taught that anteversion should be stricken out of the list of pathological positions of the fundus of the uterus. He had not found in later years any occasion whatever to interfere with a fundus that lay well to the front. He believed the symptoms of which patients complained could be accounted for by other conditions than the position of the fundus, and he invariably found some pathologic condition to account for the symptoms. He did not try to manipulate the fundus in any way with a view of fixing it, nor interfere with its mobility.

As to anteflexion, he regarded it in a different light, and believed that the anteflexed uterus was, as a rule, unless the flexion was acquired, an undeveloped uterus, and he treated it by improving its nutrition, stimulating its circulation, and developing the organ. If the case was one of acquired anteflexion, he treated it very much in the same way, but did not interfere with it surgically by shortening its ligaments or by attaching the fundus to abnormal tissue.

ENTEROPTOSIS.

Dr. Richard R. Smith, Grand Rapids, Mich., discussed this subject with special reference to body form, and the mechanical conditions governing the position of the abdominal organs, as well as the use of the x-ray in demonstrating stomach and intestines.

After referring extensively to the literature of the subject, he said that the subject was of especial importance to the gynecologist since the majority of the patients that came to him for relief showed more or less signs of this condition. Out of 100 patients examined, Mathes found but 17 who did not show distinct evidence of it. It may form merely the background of the picture which the physician had before him, or it might be the complete picture without other pathology. It could be left out of consideration as far as treatment went in patients presenting neoplasms or pelvic inflammatory diseases. It was of great importance in considering lacerations, the various displacements of the uterus, as well as that large class of patients presenting pelvic symptoms, so-called, with slight or undemonstrable lesion. One should consider the matter of operation in such cases with great care, and be most guarded in his prognosis. Above all, in case operation was done, it was very necessary that a proper course of treatment be carried out afterwards if one expected to get results. Enteroptosis and fair health were not incompatible. The enteroptosis might be of a decided degree and still the woman go through life comfortably and accomplish her work.

The treatment of enteroptosis should really begin in childhood, and it meant all that proper hygiene could do for children. The outdoor life, the exercise and school work should be carefully balanced. The child should be encouraged in the various sports which developed the chest and the muscles of the trunk. If a woman came suffering from the symptoms which accompanied enteroptosis, she should be put to bed. She should be given an abundant, easily digested diet, massage, and any necessary indications as to the bowels and digestion should be met. Pain usually decreased rapidly under this plan. He emphasized the great good that might be obtained from an outdoor life. He advised many of his patients practically as he would a patient suffering from tuberculosis. If the abdomen was prominent or very flabby, and the woman had general abdominal tenderness, and more especially if he found that by standing behind her and placing the hands over the lower abdomen (the patient standing) and lifting up, relief was obtained, he advised a well-fitting, abdominal bandage. If the patient was young, the thorax more or less mobile, he had often given a system of breathing exercises with the idea of increasing the lung capacity and the size of the upper abdomen.

DISCUSSION.

Dr. Charles P. Noble, Philadelphia, thought it was a mistake to teach that all patients who had loose kidneys had enteroptosis. It was only in a minority of cases in which a loose kidney was complicated with enteroptosis. Many patients who had enteroptosis had loose kidneys; but the converse, in his judgment, was not true. He had seen a few cases of loose kidney due to traumatism, but the number was very small. The great majority of women who had loose kidneys were unmarried; therefore the question of childbearing was a very small factor in these subjects. It had much more to do with enteroptosis by causing a flaccid condition of the abdominal muscles; but so far as the kidney was concerned, it was a small factor.

His experience had not been large in dealing with these cases in an operative way, but he had operated on a number of them, and the operation devised by Dr. Beyea, Philadelphia, supplemented by a method recommended by another gentleman whose name he could not recall, would satisfactorily take care of cases of "drop-stomach." He recalled three cases he had operated on with satisfactory results.

Dr. Matthew D. Mann, Buffalo, N. Y., said the all-pervading style among civilized women of constricting the waist line was an important causal factor of enteroptosis. The universality of this mode of dress had a great deal to do with the condition mentioned as it was more commonly found in women than in men. Men who wear tight belts, like blacksmiths, and men who constrict their waists with bands, were the subjects of enteroptoses. He condemned the use of corsets as worn by young women, and said the thorax could never attain its proper shape,the abdominal muscles lacked supportive power and the content of the abdomen would be forced down into an abnormal position. He had not been satisfied with operative procedures for the relief of the conditions mentioned.

Dr. John G. Clark, Philadelphia, had had twenty-one cases of various ptoses of the viscera, chief among which had been ptoses of the transverse colon, especially of the sigmoid flexure. He recalled several cases of ptosis of the sigmoid flexure, where a loop of bowel had been caught, in which there was alternating constipation and diarrhea, the patient going three or four or five days before the bowels would move, and and then possibly a copious diarrhea, which was not infrequently seen. He demonstrated a method which he had resorted to for the relief of this condition.

As to the etiology, his own feeling was that in many of these cases inattention to the bowels was one material factor.

Dr. J. Riddle Goffe asked what percentage of these cases came to operation.

Dr. Clark replied a very small percentage as medical men relieved the great majority of them.

Dr. J. Clifton Edgar, New York, called attention to the too early getting up of women after confinement as a causal factor of enteroptoses. Women, when they got up too early after confinement, complained of stomach trouble, and drifted into the hands of a stomach specialist, who found dropping of the stomach or intestines, yet they had not complained before. Such women were prone to attribute their discomfort to uterine trouble, to uterine displacement, etc. Constipation, alternating with relaxation of the bowels, produced by the constant administration of cathartics given during pregnancy, was one of the many causal factors. There was a faulty involution of the intestinal supports. Involution of the abdomen should be complete before a woman got up after confinement.

As to prophylaxis, massage was a valuable means. He believed in women wearing an abdominal support for three months after confinement, especially primipara.

Dr. J. Riddle Goffe, in referring to the corset as a part of woman's dress, said he believed the new-fashioned straight front corset was an improvement over those previously worn. He thought it was a beneficial garment to women. Instead of using abdominal supports, as was formerly his custom after laparotomy, he put a woman in a straight front corset, which was carefully made by a woman who carried out his idea. This corset supported the abdomen well. Women liked it very much, and continued to wear it for years. He had also recommended this corset to be worn by women with pendulous abdomens. He reported two cases of gastroptosis which were relieved by operative procedures.

Dr. Smith, in closing, said a tight corset would exaggerate such conditions as he had referred to; but it must be remembered that enteroptosis was not due to the wearing of a tight corset nor to tight lacing. Enteroptosis was quite common in Arabian women.

THROMBOSIS AND EMBOLISM FOLLOWING ABDOMINAL OPERATION.

Dr. Joseph Taber Johnson, Washington, D. C., said that these complications occurred most frequently after supra-vaginal hysterectomies for fibroid tumors, although they might follow any abdominal section, notably after suspension of the uterus. The left leg was most frequently affected; both might be alternately. The symptoms generally appeared between the second and third weeks. Suppuration was rare. Recovery was the rule, although convalescence was protracted. Pulmonary, cardiac, or cerebral embolism might result, and prove rapidly fatal. The author reported two such cases. He gave the histories of six cases of thrombo-phlebitis with slow recoveries. Was this form of phlebitis the result of infection, or was the thrombus caused by an extension of the inflammatory process along veins injured during the operation?

POST-OPERATIVE EMBOLISM.

Dr. Eugene Boise, Grand Rapids, Mich., said that it affected the pulmonary artery and its branches in the great majority of cases. An embolus presupposes a thrombus. For the formation of a thrombus three elements were necessary, — fibrinogen and calcium salts, which existed normally in the blood, and nucleo-proteid which was never found in normal blood. Nucleo-proteid was formed by the degeneration of blood plates and leucocytes. Certain conditions of the blood and blood vessels predisposed to thrombosis, as anemia or chlorosis, sepsis, excess of calcium salts, retardation of rate of blood current, traumatism, inflammation of coats of vessels, pressure, etc. Conditions calling for operation often involved one or more of these conditions. Fibroid tumors, which showed the greatest percentage of post-operative emboli, were coincident with excess of calcium salts in the blood and degeneration of the musculature of the heart, with consequent imperfect contractions, and residual blood, with retardation of blood flow, predisposing to heart clot. Indications for treatment were mostly looking toward prevention. When pulmonary embolism occurred, nothing was of much avail except the administration of oxygen.

DISCUSSION.

Dr. Charles P. Noble said: Of 7,130 women operated on in the Johns Hopkins Hospital, in 48 phlebitis occurred. As to the character of the operations performed, phlebitis occurred after perineorrhaphy, 4 times; after myomectomy, 19 times; after the removal of ovarian cystoma, 9 times; after hysterectomy for carcinoma, 5 times; after suspension of the uterus, 3 times; after suspensio-uteri and perineorrhaphy, 4 times; after hysterectomy for pelvic inflammatory disease, once; and miscellaneous, 3 times.

He had had embolism and phlebitis of the left crural vein twice after right nephrorrhaphies. He had had these conditions after hysterorrhaphy, after operations on the cervix and perineum, and one of the worst cases he ever saw was after hysterorrhaphy. He did not think sepsis had much to do with the production of phlebitis or embolism.

Dr. Reuben Peterson, Ann Arbor, Mich., said that the mystery in the etiology of thrombosis and embolism made it doubly interesting. These conditions came on not only immediately after operation, but a month or six weeks afterwards. He had a patient in the University Hospital with an aggravated form of femoral thrombo-phlebitis which appeared in the third week after operation. The operation consisted of removal of non-purulent, non-adherent appendages. There was not enough sepsis connected with the case to warrant one in thinking that any such condition would develop. During the third week she developed thrombo-phlebitis of the left side of a severe type, in that it extended not only in the femoral region, but also up over the buttocks. Swelling was very intense. Very soon a dark area appeared over the left femoral and gradually this developed into a necrosis.

Dr. Peterson exhibited a picture showing the area of necrosis referred to.

He had taken statistics from his clinic for the last four and a half years, but which did not include the case mentioned. Of 3,000 operations performed during this period, at the University Hospital Clinic, there were 6 cases of femoral thrombosis. There were 1,050 women operated on. Of these cases 3 came for removal of the appendages; one for hysterectomy for fibroid, although there were 80 or 100 cases where fibroids were removed. One came for simple dilatation and curettement of the uterus. In one case the record was not available. The left femoral vein was affected four times, and in one case the left groin and the right leg were affected.

As regarded its occurrence after operation, in one case it occurred eleven days after operation, in two cases fourteen days, in two cases nineteen days, and in one case twenty-one days.

Dr. Edward Reynolds, Boston, said: Thrombosis had occurred most frequently in his experience in cases treated for the correction of retrodeviations of the uterus, in which there had been a great deal of congestion before operation. He was inclined to believe that thromboses were more frequent now than they were a dozen or fifteen years ago. At that time we were taught and believed that that was an important element in the production of symptoms in pelvic disease.

Dr. Andrew F. Currier, New York, said: The tendency of surgeons in these days to get patients up in a hurry after the performance of serious operations had doubtless something to do with the production of thrombosis.

Dr. Seth C. Gordon, Portland, Me., agreed with Dr. Currier, and expressed the belief that too early getting up of patients after operation was causative of phlebitis.

Dr. T. J. Watkins, Chicago, said: Evidence had been brought forth to show that thromboses were in some cases due to infection. Thromboses were common in infectious diseases, where there was no traumatism. They were common after typhoid fever. If statistics were worked up, he believed it would be found that thromboses were nearly as frequent after typhoid fever as after abdominal section.

Dr. J. Montgomery Baldy, Philadelphia, said that while sepsis, pressure by retractors and traumatism of the pelvic veins were possible causal factors, yet none of the explanations so far offered seemed sufficiently feasible to explain a large number of cases.

The subject was further discussed by Drs. Le Roy Broum, New York; John G. Clark, Philadelphia; M. Dührssen, Berlin, Germany; George M. Edebohls, New York; Richard R. Smith, Grand Rapids, Mich.; Richard C. Norris, Philadelphia; Henry P. Newman, Chicago, all of whom reported cases substantiating and corroborating the observations of both essayists.

ANOMPHALOSIS.

Dr. A. H. Buckmaster, Charlottesville, Va., read a paper on this subject.

Symposium on Dilatation Versus Incision of the Pregnant Uterus.

(*a*) ARTIFICIAL DILATATION OF THE CERVIX UTERI; INDICATIONS AND METHOD.

Dr. George Tucker Harrison, New York, said that, as indications for the artificial dilatation of the cervix might be cited in the first instance, local morbid conditions which interfered to such an extent with the dilatability of the os uteri and cervix that the natural forces were inadequate to the end to be attained. In addition, direct danger to mother and child might furnish an indication for the artificial dilatation of the cervix, a danger only to be averted by a speedy delivery of the child. Of the local diseases, he referred especially to those which made a rigid, unyielding condition of the cervix, namely, chronic inflammations, syphilitic induration, carcinoma, or hypertrophy of the infra- and supra-vaginal portions. Of the pathological conditions which demanded active intervention, in the interests of both mother and child, to effect a speedy delivery, he mentioned eclampsia, prolapse of the umbilical cord, placenta previa portials, asphyxia of the fetus, and beginning sapremic intoxication, consequent upon a dead fetus or retention of placental parts. Furthermore, the premature detachment of the placenta attended by internal or external hemorrhage was a grave and dangerous accident which demanded prompt delivery. Artificial dilatation was indicated when in an obstetric operation (forceps, version, perforation) the passage of the head or breech met with difficulty in consequence of an insufficiently dilateed os uteri. Finally, an indication was furnished in cases of transverse presentation with premature rupture of the membranes, when version, according to Braxton-Hicks method, was not yet possible, and also in certain cases of narrow pelvis, with the head at the brim, in order to make the prophylactic version.

An indication for the incision of the os uteri was given when immediate delivery was a matter of paramount importance, the os uteri not being sufficiently dilated, the cervical canal, on the contrary, unfolded. The deep incisions of the cervix, usually combined with deep vaginal and perineal incisions, opened up a wider field of operative intervention. The advantages of this procedure were pointed out.

Mechanical dilatation of the cervical canal and external os uteri could be effected by distention with the fetal body after bringing down a foot, by the hand, by the use of expanding foreign bodies, such as tents, dilators, iodoform gauze, rubber bags or balloons.

(b) DILATATION OF THE PARTURIENT UTERUS.

Dr. Philander A. Harris, of Paterson, N. J., in referring to manual dilatation, said he wished to be distinctly understood as referring to a method which he had employed for the past twenty-two years, and to no other method. The method of effecting manual dilatation was first publicly described by him in 1893. By this method a far greater tonic strain could be applied upon the musculature of the cervical ring than by any other manual method. It was also far less fatiguing than other methods. It relied mainly upon the flexor muscles of the fingers and hands. Not all cervices were dilatable. Cancer of the cervix might render it undilatable. A cervix which had been partly cut away, and amputated and sewn, or resewn, might contain so much white fibrous tissue that it was undilatable. The average time required to safely dilate the cervical ring to a circumference of eleven or twelve inches should be forty-five minutes. If the cervix was not effaced, the average time of ninety minutes would be necessary to safely dilate the cervic ring to a circumference of eleven or twelve inches. The special advantage of knowing how to manually dilate the cervix was that the operator always had his hands with him, and they would scarcely ever fail to dilate the cervix if properly used.

The disadvantages of the method were the fatigue incident to the task; the frequent changing of hands from left to right, and from right to left, was liable, of course, to carry into the vagina septic matter from the rectum or some unwatched area.

The advantages of instrumental dilatation, as accomplished by the instrument which the author presented, were that it would dilate any cervix that was dilatable. It was easy of introduction. It did not have to be withdrawn and reintroduced over and over again, as would happen in the long operation, when done by the hand. It was provided with a dynamometer which showed not only the number of pounds pressure which was being exerted upon the cervical ring, but it also showed whether the ring was dilating under the pressure. The instrument had a safety device, so that extensive laceration could not occur if the instrument were properly used. Laceration, however, would rarely occur except in the hands of impatient and unskilled operators. The instrument was made of steel and could be sterilized.

No one should use it who had not previously and practically studied its behavior. A good deal of study was required to prepare one to use the instrument safely.

(*To be continued.*)

Book Reviews.

Handbook of Surgery. By George Buchanan, B.A. (Cantab.), M.B., C.M., F.F.P.S. (Glasg.), Assistant Surgeon, Western Infirmary, Glasgow; Assistant Surgeon, Glasgow Cancer Hospital. New York: William Wood & Co. 1906.

This book is intended to serve as a handbook for those who wish to review their surgery or who are about to present themselves for examination. The author recognizes that such books are in demand and has admirably presented the general subject of surgery. A handbook of surgery is necessarily condensed, and, of necessity, is open to the criticism of being incomplete. The descriptions are clear and concise and in some instances the suggestions are original; in fact, the following suggestion, while distinctly practical, is naïvely provincial: " The simplest treatment [of ectopia vesicæ] is to let the boy wear a kilt (which allows the urine to flow away at once) and live an out-door life."

Food and the Principles of Dietetics. By Robert Hutchinson, M.D. Edin., F.R.C.P., Assistant Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street; Author of " Lectures on Diseases of Children," " Patent Foods and Patent Medicines," joint author of " Clinical Methods." With plates and diagrams. Revised edition. New York: William Wood & Co. 1906.

The second revised edition contains thirty-four more pages than the first one, and shows real revision. The chapter on the amount of food required in health is most sensibly written. We regret that the salt question in edema is left untouched, and that in the article on diabetes no explanation is given of the different action of the various proteids in increasing sugar. There are other omissions of a similar nature. It is one of the best books on diet, however, which we know, and the practitioner will seldom err if he carefully follows Hutchinson's Dietetic Treatment of Disease. The author's style is admirable.

Lectures on Midwifery for Midwives. By A. B. Calder, M.B., M.R.C.S., Lecturer on Midwifery to London County Council; to St. Mary's Midwifery Training School, Fulham; to St. Clement's Maternity Home, Fulham, etc. New York: William Wood & Co. 1906.

This is a book of 274 pages, printed on cheap paper and indifferently bound. The thirteen plates so-called, with which the book is illustrated, consist of full pages containing each a dozen or more small figures executed after the fashion of newspaper pictures. There are fifteen chapters and an appendix on " Notes on the Rules of the Central Midwives' Board."

To the unprejudiced reader this seems to be a hit-or-miss-it treatise on obstetrics, written in language which is not too clear to the non-medical mind.

One can understand that it may be of value to the members of the author's class. It is of little value here in America where the midwife does not flourish.

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The French Geographical Society has organized a mission to West Africa to study the sleeping sickness in the French Congo. A central laboratory will be established in Brazzeville. The sum of forty thousand dollars has been collected for this work.

THE BOSTON

Medical and Surgical Journal.

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ANNUAL REPORT OF MASSACHUSETTS BOARD OF HEALTH.

The thirty-seventh annual report of the Massachusetts Board of Health, with its six hundred and eight pages, is so compact with the results of the scientific and practical work done by the board during the year that we can hardly do more than give a catalogue or index of its contents.

Under the general and special laws of the state requiring the advice of the Board of Health in matters of water supply, sewerage and sewage disposal, there were 105 applications from 76 cities and towns, in 72 cases with regard to water supplies, in 7 as to ice supplies, and in 21 with reference to sewerage, drainage and sewage disposal. The more than one hundred pages given to replies to these inquiries and the following chapters on the examination of water supplies, examination of rivers, water supply statistics, records of rainfall, and flow of streams, constitute an authoritative statement of the questions at issue of the greatest permanent value. Largely as the result of such work, approximately 93% of the population of the state is provided with public water supplies. An editorial last week in the Journal dealt with the disadvantages of lead service pipes. The subject is important enough to bear some repetition. Earlier investigations have shown that the principal agent in the action of water upon lead pipe is carbonic acid, which, as a rule, is in greater quantity in ground water than in surface water, the minimum amount of lead believed to have caused injury to health being approximately .05 of a part in 100,000 parts of water.

An examination of the conditions in the cities and towns of the state indicates still a quite general use of lead service pipes, with a considerable danger to health in many cases, on account of the larger expense of tin and tin-lined pipes and because of the inconvenience due to rust or choking from iron and galvanized iron. In a few cases cement-lined pipes have given trouble from detached cement, but that seems a trouble easy to avoid, and in fifty cities and towns the use of such pipes has proved in general satisfactory.

In the use of waters which take up an excessive quantity of lead, of course lead pipes must be abandoned; but nearly all waters take up lead in passing through lead pipes, and experience shows that a water which does not so act to a serious extent at some time may do so at another time, without any change of conditions that can be detected except by frequent examinations. The board's advice is to avoid the use of lead or lead-lined pipes.

Exhaustive experiments upon the use of copper sulphate in the removal of vegetable microscopic organisms, and for the destruction of bacteria, of which so much has been written and said of late, indicate that such use is effective to a limited degree, but only when the solution is in such strength as to be dangerous to health in drinking waters. The uncertainty of evenness of dissemination of this poison when used in ponds and reservoirs, and the difficulty, or often impossibility, of getting rid of it again promptly add very much to the danger of its use.

The pollution of the streams of the state by the discharge of sewage from cities and towns and factories is shown by repeated chemical analyses to increase with the growth of the population and of manufacturing, in a few instances giving rise to serious complaint. An experimental filter in a large paper mill at Mattapan is doing much for the solution of this difficult problem. The elaborate investigations of the board, too, at their experiment station in Lawrence, in the purification of sewage and the filtration of water, are each year adding to the accumulated evidence and yearly reports, which have made the board the first authority in that matter.

The examination of sewer outlets and the effects of sewage disposal, required by statute, indicates some nuisances on which legislation is advised. The results of examinations of the effect of the discharge of sewage into Boston harbor show no material change as compared with five years ago. In general, the harbor is free from the appearance of sewage pollution except near the sewer outlets. Chemical analyses, however, show that the waters in all parts of the harbor are affected in a greater or less degree by pollution from the sewers and other wastes of the great population about it. The colon bacillus or sewage *streptococcus* was found so generally in the shell water or in the body of the shellfish that there can be no question of the danger to health from eating shellfish from any point within the harbor or in the neighborhood of the islands at its mouth unless they are thoroughly cooked. The same is true of the Newburyport clam flats. This exhaustive inquiry is in a field which has been a subject of investigation by the board and by the City Board of Health for the past five years. It covers the whole ground and is conclusive.

In food and drug inspection, the year's work was of 6,104 samples, the total from the beginning now being 163,460. There were 126 samples of alcoholic liquors also analyzed. A report on the inspection of dairies by the secretary of the board is an admirable summary of most valuable work.

The report upon the production, distribution and use of diphtheria antitoxin and of vaccine and upon bacteriological diagnosis for the year should be read in full in connection with the description of the new antitoxin and vaccine laboratories, together with a ten years' retrospect of the production and distribution of diphtheria antitoxin by Dr. Theobald Smith, director of the laboratory.

Local outbreaks of infectious diseases were investigated in eighteen cities and towns.

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A HISTORY OF THE HARVARD MEDICAL SCHOOL.

The Harvard Medical School has of late been much in the public eye, owing especially to the completion and dedication of its new buildings, to which repeated reference has been made in these columns. It is, therefore, peculiarly fitting that just at this time a comprehensive and authoritative history of the school should be published. This has been done within a fortnight, in a volume of two hundred and twelve pages, and distributed with the compliments of the Faculty. The design of this history had its inception in two votes of the Faculty of Medicine in the early part of last year. As the result of these votes a plan, somewhat unique in character, was presented and approved by the corporation, of preparing a volume descriptive of the development of the school from its beginning.

The plan adopted has been to offer the history of the school by departments as they have gradually developed and split off from the original fundamental branches. Following this general plan, the volume consists largely of the history of the individual departments arranged chronologically, naturally headed by the department of anatomy and surgery and the department of the theory and practice of physic. During the century and a quarter of the school's existence it is interesting to note that from the few branches represented at the beginning, twenty-two separate so-called departments have developed, a striking enough illustration of the expansion which medicine has undergone, and is likely further to undergo in the immediate future.

The volume is amply illustrated by heliotype reproductions of buildings and persons associated with the earlier history of the school, and in a measure with its latest development. No portrait, however, is offered of any teacher now living. Following the strictly historical portion of the book, which constitutes its chief interest, is a section devoted to the new Medical School, so-called, another to a description of the new buildings, and finally is given a list of members of the Faculty as constituted Sept. 1, 1906, including also other teachers. An index follows, which is of great value in systematizing the general subject matter of the volume. A heliotype panoramic view of the new buildings, not hitherto published, serves as a very effective frontispiece of the volume. The paper, type, arrangement and general appearance of the book reflect the greatest possible credit upon those who had its publication in charge. As a history it will be of permanent value, and also as a fitting final commemoration of the opening of the new buildings and of the expansion in medical education which these buildings exemplify.

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ARMY DISINFECTION.

The *British Medical Journal* comments appreciatively upon the recent feat of the Japanese authorities in disinfecting an army of eight hundred thousand men, the whole subject being discussed at length in the August number of the *Revue d'Hygiène*. Dr. J. J. Matignon, member of the French Military Mission to the Japanese Manchurian armies, gives the details of the extraordinary task involved in the disinfection of the enormous armies before their return to Japan. The proverbial foresight of the Japanese had planned that this disinfection should be carried out should epidemic disease appear in the ranks. In spite, however, of the fact that no disease of this character developed, the army was disinfected according to the original plan. A quarantine service was organized in Japan, and under its administration the necessary disinfection stations and observation hospitals were established. As the transports arrived from the seat of war, each vessel was boarded by a disinfecting staff and the disinfection carried out on board ship as far as possible. As the troops disembarked, each man received a bath of hot sea water, and his personal equipment was subjected to disinfection by steam, formalin steam or formalin spray. Dr. Matignon was privileged to witness the procedures connected with this disembarkation and disinfection of the troops. In spite of the fact that the conditions did not render such precautions necessary, no detail was omitted, and the demonstration was given that it is possible to disinfect an army, even although reaching nearly a million in number. Perhaps the most significant lesson taught by the recent Japanese-Russian War is the possibility of accomplishing hygienic results of vast proportions, and that this may be accomplished only through extraordinary foresight and attention to detail. This home-coming of the troops quietly and when public interest has grown lukewarm is another example of the marvelous thoroughness of the Japanese, and goes far to explain not only the success of their recent campaign, but also demonstrates their possibilities as a world power in the future.

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MEDICAL NOTES.

"The Doctor's Dilemma." — In an interview, Bernard Shaw is reported to have made the following characteristic statements in regard to his new play: "A baby in arms could have written this play of mine as far as the death part of it is concerned. Pathos? Oh, yes; there will be lots of pathos; the Court Theater will be damp with tears and windy with sniffs; the fourth act will give London rheumatism. The really difficult and interesting part is the handling of that pressing modern problem, the doctor — the man who has a pecuniary interest in mutilation and an absolute license to commit murder. That is what sensible people will come to hear. They will have to bring their brains with them, too. The first act is like one hundred and fifty pages out of Joyce's 'Scientific Dialogues.' Did you ever hear of opsonin? No? Of course not; you spend your life in the theater, and therefore never hear of anything that is going on in the world. Well, 'The Doctor's Dilemma' is all about opsonin. So glad to have met you and had the chance of telling you all about it."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Nov. 7, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases; Diphtheria 64, scarlatina 24, typhoid fever 24, measles 3, tuberculosis 33, smallpox 0.

The death-rate of the reported deaths for the week ending Nov. 7, 1906, was 18.70.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Nov. 3, 1906, was 219, against 190 the corresponding week of last year, showing an increase of 20 deaths and making the death-rate for the week 18.19. Of this number 108 were males and 102 were females; 204 were white and 6 colored; 128 were born in the United States, 79 in foreign countries and 3 unknown; 46 were of American parentage, 124 of foreign parentage and 40 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 64 cases and 2 deaths; scarlatina, 20 cases and 0 deaths; typhoid fever, 35 cases and 5 deaths; measles, 1 case and 0 deaths; tuberculosis, 42 cases and 21 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 15, whooping cough 1, heart disease 19, bronchitis 1 and marasmus 7. There were 14 deaths from violent causes. The number of children who died under one year was 41; the number under five years 52. The number of persons who died over sixty years of age was 39. The deaths in public institutions were 80.

There was one case and one death reported from cerebrospinal meningitis during the week.

Closing of the Parker Hill Tuberculosis Camp. — The tuberculosis camp, instituted for the summer months on Parker Hill, has closed after its second successful season. The work done this last summer has been considerably in excess of that for the previous year and the plan has certainly demonstrated itself as both feasible and useful.

Cambridge Anti-Tuberculosis Association. — A well attended meeting of the Cambridge Anti-Tuberculosis Association was held last week at the Colonial Club in that city. The meeting was attended by upwards of a hundred citizens of Cambridge as well as by many regular members of the association, and the interest in the general subject was manifest. The following officers were elected for the ensuing year: President, Dr. Eugene A. Darling; vice-president, Mr. Archibald M. Howe; secretary, Miss Maude Batchelder; treasurer, Dr. John T. H. Nichols.

NEW YORK.

A CENTENARIAN. — Mrs. Betsy Bartlett Hudson, the oldest resident of Chautauqua County, N. Y., died on Oct. 23, at the age of nearly one hundred and three years. She was born in the village of Edinburgh, Saratoga County, N. Y., in December, 1803, was married in 1822, and lived for fifty-two years with her husband, his death, at the age of seventy-eight, occurring in 1874.

A GYPSY CENTENARIAN. — Mrs. Louisa Smith, believed to be the oldest gypsy in America, died in a camp near Freehold, Monmouth County, N. J., on Oct. 24. Her exact age is given as one hundred and one years, two months and twelve days. For sixty-five years she wandered with other members of her tribe in England, and she had six sons, two daughters, twenty-two grandchildren and over forty great-grandchildren.

BEQUESTS. — By the will of the late Mrs. Mary L. Cassily, nearly $1,000,000 in securities is left to hospitals and charitable institutions. Among the bequests are railroad stocks valued at $77,400 to the Home for Incurables in the Bronx; stocks valued at $85,000 to the Society of the Lying-In Hospital, and stocks valued at $157,000 to the New York Society for the Relief of the Ruptured and Crippled. After provision for bequests to a number of other charitable objects, the residue of the estate is to be divided equally among the three institutions named.

A NEW MEDICAL DIRECTORY. — The first medical directory under the auspices of the Medical Society of the State of New York was issued on Nov. 2. It takes the place of the directories formerly published by the New York County Medical Society and by the New York State Medical Association. It is a volume of 985 pages and, in addition to other matter, contains the names of all registered physicians in the states of New York, New Jersey and Connecticut. The total number of these is 15,531, of whom 11,976 are in New York state, 2,276 in New Jersey and 1,279 in Connecticut. In New York City there are 6,034; 4,293 being in the boroughs of Manhattan and the Bronx (New York County), 1,559 in Brooklyn, 124 in Queens and 58 in Richmond (Staten Island).

GYMNASIUM FOR THE PUBLIC SCHOOLS. — For the first time in its history, the Board of Education has an entire separate building at its disposal for the use of the pupils of the public schools as a gymnasium. This is the large structure on Cooper Square originally occupied as an armory by the Seventh Regiment, and until the last month by the Sixty-ninth Regiment of the New York State National Guard. The building belongs to the city, and since the recent removal of the Sixty-ninth to its new armory there have been numerous offers to rent it as a skating rink. Mayor McClellan and Controller Metz, however, believed that this was an excellent opportunity to provide a public school gymnasium, and on Nov. 1 the Sinking Fund Commission, by a unanimous vote, gave the Board of Education the right to use the armory for this purpose.

Obituary.

JAMES STEWART, M.D.

THE death of Prof. James Stewart, of Montreal, is announced, at the age of sixty. Dr. Stewart was born in Ontario, of Scotch parents, received the ordinary school education, entered McGill College and was graduated in medicine in 1869. He thereafter acquired a large practice in a country district. During this time of beginning practice he continued his medical studies in England, Scotland and Germany. He perfected himself in modern diagnostic methods, and made a particular study of disorders of the nervous system. His fame as a consultant grew, and in 1883 he was appointed to the chair of materia medica and therapeutics at McGill University, succeeding Dr. William Wright. He was successful as a teacher of these subjects, but later succeeded Dr. Howard in the chair of practice, and also became the first physician-in-chief to the Royal Victoria Hospital, where his best work was done. Dr. Stewart was a large contributor to medical literature, most of his papers relating to diseases of the nervous system, in which his interest chiefly centered for many years. He was at one time both secretary and president of the Canadian Medical Association, and was also a member of the Association of American Physicians, of which he was president in 1903. Throughout his later years he was active and successful as a teacher and was highly thought of by students and physicians alike. His death finally resulted from apoplexy consequent upon cardio-renal disease and occurred on Oct. 6.

Current Literature.

Deutsches Archiv für klinische Medizin.

Bd. 87, Heft 5 and 6

1. * Bilaud. *The Changes Produced in Vessels and Viscera by Adrenal Preparations.*
2. Meisenburg. *Uric Acid Estimation by Direct Precipitation.*
3. * Joachim. *Mast-cell Leukemia.*
4. * Schmidt. *Functional Pancreas Achylia.*
5. * Jochmann. *Sepsis Arising from the Urinary Tract.*
6. * Pfister. *Diffuse Phlegmon of the Entire Esophagus and Stomach.*
7. * Ebstein. *The Presence of Blood Clot in the Sputum.*
8. * Edlefsen. *The Medicinal and Dietetic Treatment of Catarrh of the Bladder and Pelvis of the Kidney.*
9. * Wennagel. *The Relation between the Duration of Sickness and the Age of Intestinal Lesions in Typhoid.*
10. * Schmoll. *Two Cases of Adams-Stokes Disease with Disassociation of Auricular and Ventricular Rhythm and Lesion of the His Bundle.*
11. * Pässler. *A Contribution to the Pathology of Renal Disease, with Clinical Observations on Total Suppression of the Urine.*
12. * Rolly. *The Disease Produced by the So-called Bacillus Paratyhi.*

1. Ten rabbits received successive intravenous injections of adrenalin, while eight others were similarly injected with adrenalin and potassium iodide. Vascular changes like those already described by numerous observers were the result, and these were more marked in the animals receiving both adrenalin and potassium iodide. A few animals showed hypertrophy of the heart. In the kidneys the lesions were foci of necrosis of the tubular epithelium and deposits of lime salts, most commonly in the lumen of the convoluted and straight tubules. The urine of these animals was very toxic, but gave no evidence of the presence of adrenalin. The lesions found and observations on the blood pressure of the animals support the view that the lesions produced by adrenalin are toxic in origin rather than the result of increased blood pressure. [The vascular lesions following adrenalin injection have but slight similarity to the usual form of arteriosclerosis in man, so conclusions as to the disease in man and its treatment should be drawn with great reserve from animal experiments. Bilaud's observation of a heightened effect where both adrenalin and potassium iodide are used is contrary to the result obtained by some other experimenters and requires the confirmation of a much larger number of animals, since we know that there is great natural variation in the susceptibility of rabbits to adrenalin injections.]

3. Joachim reports two cases of leukemia which showed a large percentage of mast cells. In Case I, during five weeks, the number of white blood cells varied between 189,000 and 156,000, with from 53.6% to 34.9% mast cells as extremes of different estimations. In Case II, in three weeks there were 237,000 to 98,500 white blood cells, with 56.4% to 80% mast cells. Case II at autopsy showed large numbers of mast cells in the tissues, with active proliferation in bone marrow, spleen and liver. The author thinks his two cases justify the claim of a mast cell leukemia as a subclass of the atypical leukemias. Further, Case II was much more refractory to x-ray treatment than the common type of leukemia. [Case II is of interest aside from the question of classification in that it throws some light on the question of the origin of the mast cells of the circulating blood and justifies the assumption that like the polynuclear neutrophiles, they are formed in the bone marrow from cells of the myelocyte group, and that in disease the spleen and liver can undergo a myeloid transformation and supplement the activity of the bone marrow, in this case forming a greatly increased number of cells with basophilic granules instead of cells with neutrophilic granules, as is usually the case.]

4. Functional pancreatic achylia is a defective secretion of the pancreatic juice without evidence of any organic lesion of the pancreas. It bears a close analogy to functional disturbances of the gastric secretion. Unlike the stomach, the pancreas does not permit of a direct examination of its secretion, but we must depend upon changes in the feces as evidence of pancreatic disturbance. Schmidt believes our clinical methods have been sufficiently perfected to justify conclusions as to the activity of the pancreas from the character of the stools. The methods to which he attaches most importance are the use of his standard test diet, with chemical and microscopic study of the stool, and the use of his "Säckchenprobe" to determine the digestion of nuclei, and a comparison of the stools before and after the use of pancreatic preparations, such as pankreon. If there is found a marked increase in the total nitrogen, fat and carbohydrate of the stool as compared with the normal individual on the same diet, if the muscle nuclei are not digested, and if these conditions are changed by the use of pankreon, Schmidt considers that the pancreatic secretion is deficient or absent. If these conditions disappear after treatment, he considers the change a functional one and not an organic pancreatic lesion. Such changes do not occur in intestinal lesions except such as severe intestinal tuberculosis, amyloidosis, etc., conditions which can be excluded in a given case. Schmidt reports here three cases which he believes support his claim of the existence of a functional pancreatic achylia. In their treatment a consideration of associated gastro-intestinal disturbances, especially those of the stomach, is important, along with a general regulation of the diet and the use of pancreas preparations. [This condition is of special interest in connection with prognosis and the question of operation in cases of pancreatic disease.]

5. Under this title the author reports one case of catheter fever due to general infection with staphylococcus pyogenes albus and two cases of general infection with Bacillus coli communis. He discusses in some detail the pathology of colisepsis.

6. This is a unique case in the great extent of the inflammatory lesion. Symptoms began with pain in the neck on swallowing, which rapidly increased in degree and extended to the substernal region. Examination with the laryngoscope showed extensive swelling and inflammation of the pharynx in the region of the glottis, with a small defect in the mucosa. Only on the sixth day was the epigastrium tender. The patient died on the seventh day, and autopsy revealed no etiological cause for the lesion, a phlegmon chiefly in the submucosa, extending from glottis to pylorus.

7. Twenty-seven years ago Ebstein saw this case, but refrained from reporting it in hopes a second similar one might in the meantime come under his notice. A man of forty-eight during a year had several attacks of hemoptysis and coughed up blood clot casts of the bronchial tree. There was slight expectoration, often blood-stained, slight dullness in the left upper lobe, no fever. There was no satisfactory etiology. The man died in about a year, but there was no autopsy. It is considered a case of chronic bronchitis hemorrhagica.

8. In the treatment of acute and chronic cystitis Edlefsen believes that the use of the newer medicinal preparations of the urotropin group has led to an unjustified neglect of the older remedies, as turpentine oil, copaiba balsam, chlorate of potash, and uva ursi. The good results from the newer drugs depend on their antiseptic qualities and are applicable to cases of marked bacteriuria and high-grade ammoniacal fermentation. In catarrhal conditions, or where, though the bacteria have been largely destroyed, the pyuria and other symptoms continue, the antiseptic drugs are of no value, while the older, especially chlorate of potash and turpentine oil, often are curative and are more advisable than local irrigations. He uses chlorate of potash 0.75 gm. six times a day (15 cc. of a solution of 15 gm. in 300 cc. water) for an adult and turpentine oil 5 to 6 drops four times a day in milk. Failing with one, it is advisable to try the other. He thinks given this way there is no danger from potassium chlorate except in the following conditions, which are contra-indications for its use: acute nephritis, general cyanosis, icterus. These drugs are of little use in gonorrheal conditions, and none of them in tubercular. Interdiction of certain foods he considers to be without any reason. Any nutritious diet is allowable, but beer and alcoholic beverages are to be strictly forbidden. Mineral waters are useful, provided they be given in relation to the reaction of the urine (not alkaline waters when

the urine is highly alkaline and the reverse and not in excess. He cites a number of cases in support of his contentions.

9. Wennagel finds that it is not possible to estimate with certainty the duration of the illness from the anatomical lesions. Typhoid is to be regarded as a general infection in which intestinal lesions occur, but the symptoms are not the result of the intestinal lesions.

10. The author reports two cases of Adams-Stokes disease (heart-block) in one of which at autopsy a destructive lesion of the His bundle was found. This lesion consisted in a scar tissue formation with atrophy of the muscle fibers. [This disease has been recently discussed editorially and also by Pratt in "Progress in Pathology," this JOURNAL, for Oct. 4, 1906.]

11. Pässler gives a case of total suppression of the urine, with death on the twelfth day. He compares the symptoms with those of nephritis and finds much difference. There is no acute eclamptic uremia, so he regards uremia as not due to the retention of bodies normally present in the urine, but as toxic. The edema is slight, not the anasarca of nephritis which must be regarded as of complex genesis, not simply the result of hydremic plethora. There is a rise in blood pressure similar to that in nephritis, both of which can be explained by the retention of urinary products.

12. Rolly divides cases of infection with the paratyphoid bacillus into two groups: those with typhoid-like symptoms, those with symptoms of a gastro-enteritis, and reports two cases of each. No differences can be made out between the strains of bacteria which may cause each, though clinically the types are quite different. Similar differences in type were described in the pre-bacteriologic days in cases of meat poisoning, and now it is often a matter of taste as to whether a case is described as infectious enteritis or paratyphoid infection. If only those fatal cases of longer duration in which careful bacteriologic examinations have been made are considered, we find that relatively seldom is the lymphoid apparatus affected, as is commonly the case in typhoid, but that the lesions are usually those of a gastro-enteritis. On both anatomical and clinical grounds, according to the author, we are unjustified in sharply separating the disease caused by the Bacillus paratyphi from that caused by the Bacillus typhi of Eberth. In cases of paratyphoid infection which have a sudden onset and the symptoms of an acute enteritis, the symptoms are due to toxins ingested with the bacteria, while those with a longer incubation period are purely bacterial infections. Curschmann has pointed out that similar differences may exist for typhoid, though the typhoid organism does not produce a very active toxin and the toxic form is unusual. If the case has the symptoms of typhoid fever, Rolly believes it should be so diagnosed, whether it is due to infection with the Bacillus typhi of Eberth or the Bacillus paratyphi. Cases of enteritis due to these organisms are important to recognize by bacteriological study, so that proper precautions can be taken against the infection of others.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 39.
SEPT. 24, 1906.

1. WESTENHOEFFER, M. *The Present State of Our Knowledge Concerning Epidemic Cerebrospinal Meningitis.* (Continued article.)
2. CASPER. *Hemorrhages from the Kidney.*
3. * WEINSTEIN, E. M. *The Cure of Post-Operative Abdominal Fistula by Wright's Vaccine Method.*
4. * ROSENBERG, E. *Clinical and Experimental Studies on Gastroptosis.*
5. DUNIN, T. *A Conception of Neurasthenia.*
6. WOHLBERG. *The Winter Climate of the North Sea Resorts.* (Concluded.)

2. See BOSTON MEDICAL AND SURGICAL JOURNAL, Oct. 25, 1906, p. 485, abstract no. 18.

3. Weinstein obtained excellent results with Wright's vaccine method in three cases of post-operative abdominal fistula. All were streptococcus infections, and were treated with injections of dead cultures of streptococci obtained from the fistula. A fourth case, in which a fecal fistula existed, showed very little benefit, owing to the continual reinfection from the intestine. The opsonic curve was in accord with the clinical findings in every case.

4. In 20 cases of gastroptosis, Rosenberg found hypermotility in 20%, normal motility in 10%, hypomotility in 70%. These results are in accord with generally accepted views, but differ from those of Loening, who found increased motility the rule. The motility was estimated by Leube's method; the contents obtained after an Ewald test breakfast, together with the wash-water, are evaporated to constant weight, and the weight compared with that of the normal residue.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 41.
OCT. 11, 1906.

1. * GOLDSCHEIDER. *The Examination of the Heart in the Left Lateral Position.*
2. PFANNENSTIEL, J. *The Indications for Treatment in Cases of Labor with Narrow Pelvis.*
3. * FRANKE, F. *Primary Tuberculosis of the Spleen.*
4. * MANASSE, P. *Ileus due to Obstruction of the Splenic Flexure.*
5. OBERNDORFER. *Is there a Chronic Appendicitis?*
6. TILLISS. *On the Treatment of Cardiac Weakness by Electricity.*
7. RATTNER. *On the Use of Bornyval in Gynecology.*
8. UNRUH. *The So-called School Anemia.*
9. MAYER, T. *The Painless Injection of Soluble Preparations of Mercury.*

1. Goldscheider believes that the principal factors in the dislocation outwards of the apex beat in the left lateral position, are the weight of the heart, the blood pressure, the length of the ascending aorta and the resistance offered by the lungs. Normally the apex beat moves two to three centimeters towards the axillary line in this position. In atheroma of the aorta, in cardiac hypertrophy of medium grade and in neurasthenia, the apex may be displaced as far as the left axillary line; while in emphysema and chronic passive congestion of the lungs, there is diminished displacement. Goldscheider has found this position of value in the diagnosis of hypertrophy of the left ventricle; in some cases in which the apex beat was feeble in the usual position, it became forcible when the patient lay on the left side. It may be necessary, in order to bring out the apex beat in this position, to examine at the end of expiration or of inspiration.

3. Franke reports a case of extirpation of the spleen for primary tuberculosis. The patient died suddenly three weeks later. The symptoms of primary tuberculosis of the spleen are those of chronic splenic enlargement, usually without fever. The diagnosis is impossible before operation; the increase in the red corpuscles, which has been noted in some cases, is inconstant and also occurs in cases of splenic tumor without tuberculosis. Removal of the spleen is the treatment indicated, and has resulted in cure in seven out of ten cases.

4. Manasse reports a case of acute intestinal obstruction at the splenic flexure, the mechanism of which, as disclosed at operation, is very interesting. The transverse and descending colons met at an acute angle and their adjoining surfaces had become adherent to one another; the former was very long, and sagged in the form of a bow nearly to the pelvis. The cecum was enormously distended with gas, the transverse colon less so, the descending colon collapsed. Manasse surmises that, fermentation taking place in the transverse colon near the splenic flexure, this part became distended with gas and completely closed the passage by a sort of valve-action. (Gassperre.) Such a condition is probably not very rare, but is readily overlooked; the treatment consists in colostomy or, if the patient's strength permits, in anastomosis between the transverse and the descending colons.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 41.
OCT. 9, 1906.

1. SEITZ, L. *On Hebotomy.* (Continued article.)
2. MANTEUFEL. *The Behavior of the Agglutinins in Passive Immunization.*
3. * MORO, E. *Natural Disinfection of the Intestine.*
4. JOCHMANN and MÜLLER. *Further Results from Our Method for the Demonstration of Proteolytic Ferments.*
5. RITTER, E. *On the Demonstration of the Spirochete Pallida in Syphilitic Material.*
6. SUDECK, P. *The Technic of Primary Ether.*
7. WAELSCH, L. *Plastic Induration of the Penis.*

8. Assfalg. *Treatment with Quicksilver Light.*
9. Mayer, K. *The Histology of Chondrosarcoma.*
10. Weckerle. *False Diaphragmatic Hernia.*
11. Palmer. *A Case of Rheumatic Meningitis.*
12. * Rieder, H. *The Value of X-ray Examination in Pneumonia.* (Concluded.)

3. Moro has made interesting observations on the bacteriology of the feces. As shown by Tissier, the stools of the breast-fed infant contain an anaërobic bacillus, the Bacillus bifidus, almost in pure culture. The stools of bottle-fed infants and of adults contain a great variety of organisms, especially of the colon group. Moro has found that human milk constitutes the best culture medium for the B. bifidus. When infants previously bottle-fed, and adults were put on a diet consisting exclusively of human milk, their stools reverted to the type of the breast-fed, in that the Bifidus appeared in pure culture. Moro considers that this method of altering the flora of the intestine should prove of advantage in the various bacterial infections of the bowel.

2. Rieder shows that the x-ray examination in the earliest stages of pneumonia reveals a shadow corresponding to the seat of the disease. This shadow always appears first at the hilus of the lung and remains localized there in the cases of "central pneumonia"; in others it passes more or less rapidly to the periphery. On the basis of these x-ray findings he concludes that the consolidation in fibrinous pneumonia always begins near the hilus. In a considerable number of cases the diagnosis was possible by means of the x-ray before it could be made by other methods. The x-ray was especially valuable in detecting empyema following pneumonia.

British Medical Journal.

Oct. 13, 1906.

1. Macleod, K. *The Study of Tropical Diseases.*
2. Crichton-Browne, J. *Universities and Medical Education.*
3. Ballance, C. A. *Then and Now in Surgery.*
4. Ashby, Henry. *A Discussion on Pneumococcal Infection during Early Life.*
5. * Lovett, R. W., and Nichols, E. H. *Osteogenesis Imperfecta with the Report of a Case, with Autopsy and Histological Examination.*
6. Ewart, W. *The Abdominal Atony of Rickets, Its Significance and Its Treatment; with Remarks on the Thorough Treatment of Rachitis.*
7. * Starr, C. L. *Treatment of Tuberculous Abscess.*
8. Blackader, A. D. *Rheumatism in Children.*
9. Kerley, Morse, LaFétra, Shaw, Gilday and Vincent. *A Discussion on Entero-colitis.*
10. * Cantley, Stiles, and Putnam, C. P. *A Discussion on Congenital Pyloric Stenosis.*

5. The term "osteogenesis imperfecta" applies to those rare cases in which multiple fractures occur during intra-uterine life or in infancy. Originally such cases were called "fetal rickets" and their pathological peculiarities were not recognized. Nothing is known concerning the etiology except its hereditary tendency; it is a disease of early life; the number of fractures may be large, one case having 113; the long bones are usually involved. The patient is usually below normal size and often of a cretinoid type. X-ray examination shows only a feeble shadow with a narrowed cortical layer. The prognosis is absolutely bad; there is no satisfactory treatment. The writer's case was a male, weight three pounds, delivered easily by a foot presentation; both thighs and both legs were found broken with evidence of healed fractures elsewhere; others occurred later on. He died in ten months. At the autopsy, macroscopically very little abnormal was found. The writers give a detailed description with microphotographs of the altered condition found in the bone-forming tissues.

7. A certain proportion of tuberculous abscesses will get well on the hygienic outdoor treatment; others must be treated surgically. Starr emphasizes the need of surgical interference before the abscess burrows or opens spontaneously. Aspiration rarely does good; injection of germicidal agents is uncertain and unsafe; excision of the entire sac is ideal but rarely possible; incision and drainage, the usual treatment, leaves a sinus which may last for years. In a series of 55 cases, Starr has used incision, evacuation of contents, curettage of the wall and tight closure of the wound. In the early cases he swabbed out the cavity with crude carbolic and left in iodoform emulsion; both of these procedures he has now abandoned, and merely carefully wipes the wall with iodoform gauze and closes with deep sutures. His results have been extremely satisfactory.

10. Cantley considers atresia and stenosis in general, functional pyloric spasm and congenital hypertrophic stenosis, going into details of symptoms, diagnosis, differential diagnosis, morbid anatomy and pathology of the latter. Treatment to be successful must be surgical. The choice of operations lies between pyloroplasty, Loretta's stretching operation and gastro-enterostomy. He considers Loretta's operation unscientific and dangerous and prefers pyloroplasty to gastro-enterostomy because as yet there is no evidence as to the ultimate effect of a gastro-enterostomy on the pylorus. Stiles quotes extensively from Cunningham's work on the normal anatomy of this region; he then speaks of the pathology, and goes into the details of the surgical treatment. He describes (1) the incision; (2) the closure of the abdominal wound common to all the operations, then speaks of Loretta's stretching operation. He has collected 29 cases of this with a mortality of over 50%; gastro-enterostomy he considers of much greater difficulty here than in the adult, with a consequent higher mortality; with pyloroplasty he has had little experience and no success. The choice between these last two depends largely upon which the surgeon has had the more experience with.

The Lancet.

Oct. 13, 1906.

1. Griffith, T. W. *A Case of Infective Endocarditis Involving the Pulmonary Valves and Associated with Imperfection of the Inter-auricular Septum.*
2. * Poynton, F. J., and Holmes, G. M. *A Contribution to the Pathology of Chorea.*
3. Williamson, R. T. *The Type in School Books and College Text-Books.*
4. Mercier, C. *Agorophobia: A Remedy.*
5. Macewen, J. A. C. *A Case of Cerebral Tumor giving Rise to Jacksonian Epilepsy and, at a Later Stage, Coma; Operation; Removal of Tumor; Recovery.*
6. Keetley, C. B. *The Prevention of Cancer Regarded as a Practical Question Ripe for Solution.*
7. Benthall, A. *The Workmen's Compensation Bill.*

2. This disease was for a long time grouped among the functional affections. The writers go on the hypothesis, based on the previous work of Wasserman, Paine, Poynton, Beattie and others, that rheumatic chorea is an infection of the brain and its meninges with the diplococcus rheumaticus — that it is a "cerebral rheumatism." They add three more to the cases already recorded of the presence of a diplococcus in the pia mater of fatal cases of chorea. In all three a diplococcus was isolated from the congested pia mater; destructive lesions secondary to these vascular changes were found in the nerve tissue itself. They discuss on this basis the relation between chorea and rheumatism, and chorea and pregnancy.

The Journal of the American Medical Association.

Oct. 20, 1906.

1. Tyzzer, E. E. *The Simultaneous Occurrence of Two Non-related Tumors in a Mouse.*
2. * England, J. W. *The Use of Sodium Citrate as a Modifier of Cow's Milk.*
3. Morrow, P. A., Hudman, W. J., Holton, H. D., Tuffier, T., Carrier, A. E., Whiteside, G., and Lewis, B. *A Symposium on the Prophylaxis of Venereal Diseases.*
4. Puckner, W. A. *The Chemistry of the Organic Silver Compounds.*
5. Roth, A. H. *X-Rays in the Treatment of Leukemia and Hodgkin's Disease.*
6. * Engelbach, W., and Brown, O. H. *Polycythemia.*
7. Southard, E. E., and Stratton, R. R. *Acute Septomeningitis.*
8. * Hollenbeck, H. S. *The Early Diagnosis of Abdominal Hemorrhage.*

9. * SEWALL, H. *Experiments on Venous Blood Pressure.*
10. DENCH, E. B. *The Treatment of Intracranial Complications of Middle Ear Suppuration.*
11. CROCKETT, E. A. *Tuberculosis of the Middle Ear and Mastoid.*
12. * KNAPHEIDE-GERMANN, M. *Pleuritic Exudates in Children*

2. England concludes from his laboratory experiments that sodium citrate does not have the action claimed for it of decomposing calcium casein. He believes that whatever action it has in aiding digestion is due to the sodium chloride formed from it by the gastric HCl. The importance of sodium chloride, in his opinion, is greater than has been hitherto supposed.

6. Engelbach and Brown describe the condition of polycythemia, analyzing twenty-five cases from the literature and reporting one case of their own. The main features of the disorder are cyanosis, enlarged spleen and abnormally high red count, without accepted anatomic cause such as congenital heart disease. Headache, vertigo and general weakness are the most constant symptoms. Pulse, respiration and temperature were as a rule not increased. The pulse was generally of increased tension, and albumin was present in the urine of more than half the cases. The highest red count recorded is 19,000,000. The disease advances progressively to a fatal termination, the average duration of life being six to eight years. No treatment has produced any permanent benefit.

8. Hollenbeck urges exploration with a trocar to detect hemorrhage into the peritoneal cavity. By experiments upon animals he has established that with his trocar there is no danger of entering the intestine. If the blood is clotted, sterile fluid can be introduced and will be blood-tinged when it is withdrawn. In intestinal perforation, or rupture of the bladder a fecal odor or urea will be detected in the fluid.

9. Sewall discusses variations in the venous blood pressure which, it is claimed, exerts an influence even greater than that of the arterial pressure upon the capillary circulation. Venous pressure is subject to the following influences. It is increased by increased arterial pressure, also by increased resistance to the discharge of blood into the heart. The intrinsic contraction of the veins, muscular compression, mechanical stretching and the action of gravity are also active. The pressure in the peripheral circulation, both venous and arterial, is greatly influenced by the vasomotor tone of the splanchnic circulation. In circulatory disorders the arterial pressure is not alone to be considered; the venous pressure is also of importance both in its absolute increase or decrease, and in the changes of its ratio to the arterial pressure. The ratio of arterial to venous pressure is increased in vasomotor arterial spasm, arteriosclerosis or increased viscosity of the blood. The ratio of arterial to venous blood pressure is decreased in obstructions to the output of the right heart or in disorders of intermediary metabolism. When both pressures are abnormally high but are in the normal ratio, there is evidence of general plethora. Where both pressures are low but still in their normal ratio, the condition is that found in simple asthenia or during recovery from a break of compensation in mitral insufficiency.

12. Germann describes the conditions of serous pleurisy and empyema in children. Tactile fremitus in infants may persist. Light percussion gives dullness or flatness, changing with change of position. The resistance to the percussing finger is peculiarly wooden in character. Absent or distant tubular breathing may be found. In the discussion of this paper, Morse mentions the rarity of serous pleurisy in infants, also the occurrence of only slight dullness or of tympany over fluid, and the great importance of the sense of marked resistance to percussion; displacement of the heart and the presence or absence of tympany in Traube's space are to be noted. Klimer recalls the teaching of Holt that with bronchial breathing over a very large area of lung there is fluid in nine cases out of ten.

Indications for Surgical Intervention in Diseases of the Stomach. Blake[1] urges that surgery must not be considered a cure-all in diseases of the stomach; a proper selection of cases is essential. Operations are performed (1) to repair wounds and perforations; (2) to improve drainage and (3) for the excision of diseased areas. Indications for the first of these are clear. Improvement of drainage by gastro-enterostomy or by Finney's pyloroplasty is indicated in pyloric obstruction, in ulcer of the stomach or duodenum where medical treatment has failed, and for repeated hemorrhage or for a single large hemorrhage with antecedent symptoms of ulcer. Partial gastrectomy is performed mainly for cancer. When this is suspected the lack, rather than the presence, of a diagnosis is the indication for surgical interference.

Sclerosis of the Coronary Arteries. Brooks[2] analyzes 270 cases presenting coronary sclerosis in such degree as to seriously affect the nutrition of the heart muscle and nerves. They all occurred in a series of 1,000 consecutive autopsies, illustrating the frequency of the condition. Senility *per se* is not a common factor in the etiology. Causes to which it was most often attributable were as follows: Abuse of alcohol in 107 cases, nephritis in 35, syphilis in 30, tuberculosis in 20, senility in 16, excessive use of tobacco in 9. It was less frequent in persons who had been constantly engaged in hard physical work than in intermittent workers such as athletes, and in professional men who had lived irregular lives under great nervous tension. Of the 270 cases all but 15 showed lesions of the myocardium visible to the naked eye, — fatty heart, brown atrophy, fibrosis, etc. The symptoms in the early stages are vague. There is usually irregularity of the heart's action and variation in pulse volume. There may be slight cardiac dilatation, some discomfort or pain, symptoms of broken compensation, bradycardia, cold extremities or rarely angina pectoris. Diagnosis is suggested by presence of some of the factors of etiology and of symptoms mentioned above. Where peripheral sclerosis is present coronary sclerosis is probable, but absence of thickening of peripheral arteries in no way excludes the possibility of coronary disease. The treatment is largely hygienic, avoiding spasmodic mental or physical exertion, alcohol and tobacco and unsuitable diet. Potassium iodide in small doses is often useful even in non-syphilitic cases. Digitalis, strophanthus and ergot are given in small doses for arhythmia and tachycardia. Nitroglycerin will give immediate but very temporary relief. Strontium bromide gr. vii-xiv once or twice a day may be given cautiously as a sedative. Exercise and rest are to be regulated according to the needs of the case.

Intestinal Origin of Pulmonary Tuberculosis. Calmette and Guérin[3] report some interesting experiments on the mechanism of infection in tuberculosis. The frequency of pulmonary tuberculosis and the rarity of intestinal tuberculosis would naturally suggest a mode of entrance through the respiratory tract. The researches here described do not, however, lead to this conclusion. The peribronchial lymph nodes are by all acknowledged to be the primary lesions in tuberculosis; how they are first affected is open to dispute. In all their experiments on animals in which tuberculous material was given by mouth and any chance of aspiration carefully avoided, in thirty to forty-five days they found these peribronchial lymph nodes to be affected, *but only secondarily*, from the leucocytes loaded with bacilli which had gained entrance into the alveoli direct through the capillaries, from the intestine. If only one infected meal was given the mesenteric glands gathered in most of the germs; if more, the leucocytes containing the germs went into the thoracic duct, and up into the alveoli through the capillaries. Healing took place at once if only a few bacilli gained entrance. They experimented on animals giving bacilli direct into the trachea, or in air or vapor laden with germs, and in every case the primary and important path of infection was not by way of the lungs direct but by saliva and mucus containing bacilli, which was swallowed. They conclude that if tubercle bacilli can be prevented from entering the digestive tract that the greater part of all pulmonary tuberculosis and tuberculosis elsewhere will be done away with. Secondly, they conclude that a few bacilli ingested and reaching the lungs are easily disposed of and act in the way of vaccinating the body, but continued small ingestions will cause serious lesions.

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[1] N. Y. Med. Jour., Oct. 27, 1906.

[2] N. Y. Med. Jour., Oct. 27, 1906.

[3] Annales de l'Institut Pasteur, Aug., 1906.

Correspondence.

LETTER FROM LONDON.

"Introductory Addresses." Professor Pawlow and Professor Osler. "The Pallid Spirochete." Landry's Paralysis. Race Suicide. The Increase of Insanity. Tropical Medicine. David Goodsall. Dr. J. H. Bell. The Aberdeen Quatercentenary.

[*From our Special Correspondent.*]

London, Oct. 26, 1906.

Mr. Editor: Year by year the early days of October witness the perpetration of many "introductory addresses." Some years ago, a distinguished pathologist, all unwillingly saddled with the "onerous honor" of delivering such an address at one of the London schools, characterized the occasion as "a crystallized anachronism." His was no hesitated sneer; blunt sarcasm and blithe contempt rather. Yet anachronisms die hard, and the year of grace 1906 has fared but little better than those forerunning. Time was when the introductory address figured as a solemn adjuration to the neophyte; nay, more as a public profession or tacit acceptance of the Hippocratic oath. Yearly the tradition of professional *morale* exacted oral tribute.

Now-a-days, as the *Times* says, a range of some three topics suffices for the orator's choice: The use or abuse of hospitals, the allocation of the student's time-table, and the growing dependence of medicine upon the careful and scientific prosecution of research.

At the Charing Cross Hospital, the ancient rite has developed into a lecture, commemorative or panegyric of Huxley, delivered by some distinguished man of science, often a foreigner.

This year Professor Pawlow, of St. Petersburg, discoursed upon the objective investigation of the psychical processes of the higher animals. He illustrated his method of attack upon this abstruse subject by detailing one series of observations for which the flow of a dog's saliva was selected as a simple and suitable objective criterion. As a result of these experiments it becomes evident that, besides the direct reflex route for stimulation of salivation, almost any form of peripheral stimulus, wherever applied, could be made adequate, by constant precise and deliberate association with one of the direct adequate reflexes. Professor Pawlow terms these indifferent stimuli educated to the point of adequacy, "conditioned reflexes."

This result, small though it be, has obviously wide bearings, and should serve, as the lecturer observed, to arrest the threatened defection of psychology from the bonds of physiology.

Professor Osler, in his Harveian oration [1] has demonstrated to the world at large that medicine and scholarship are not yet divorced, or at least that the decree has not yet been made absolute. A title such as "The Growth of Truth," in this materialistic age might summon the shade of Pontius Pilate if not haply the ghost of Gallio, but the professor placates these sorry shades by the admission that "to scientific truth alone may the *homo mensura* principle be applied, since of all mental treasures of the race it alone compels general acceptance." To illustrate his three stages of the growth of truth,— acquisition, latent possession, conscious possession,—our knowledge of syphilis was instanced, with the pallid spirochete as the crowning witness of "conscious possession" of the key.

Now, universally as the spirochete is accepted in some parts of the Continent, not everyone here betrays the same enthusiasm for an organism which has not yet satisfied the postulates. The Anglo-Saxons were ever a race of scientific agnostics.

There is another organism still quivering in anticipation of its title claim. Farquhar Buzzard lately described a tetra-coccus which he had found associated, post-mortem, with Landry's paralysis, and more recently Macnamara and Bernstein recovered a tetra-coccus from the blood stream and cerebrospinal fluid of another case.

They have not, however, so far succeeded in producing experimental lesions having any resemblance to those of Landry's disease.

The Fabian Society, a little while ago, instituted an inquiry into the extent to which volitional regulation of the married state is prevalent in this country.

They have made a limited inquisition amongst persons of every social grade, the highest and lowest, considered willing and able to give accurate answers, and have obtained confirmation of the statistical evidence already furnished by Heron, Newsholme, Karl Pearson and others to the effect that the steadily declining birth-rate is due, not to urbanization, to postponement of marriage or to any of the varying factors of social fashion, but to direct regulation of the size of the family. Not less than half, and probably two thirds, of the married in the United Kingdom voluntarily limit the number of their children.

The serious side of this matter is that, as Pearson points out, the 25% of the population which comprises the largest proportion of poverty-stricken, ill-educated, ill-disciplined persons, aliens and others, produces 50% of the children.

A very interesting piece of evidence is advanced in Sydney Webb's articles with respect to the "Hearts of Oak Benefit Society" which concerns a million and a quarter souls, distinguished from the rest of the population in no other characteristic than that of thrift. Among the 300,000 families concerned, the fall in the birth-rate is enormously greater than the average.

Thus it would appear that the more desirable the parentage, from the point of view of the state, the less expectation is there of progeny. One member of the Fabian Society whose name is now on every fashionable lip, Bernard Shaw, has long since had the courage to state the social problem biologically and advocate the breeder's method of improving the human stock. Here we have another member, Mr. Sydney Webb, proposing the endowment of motherhood and a virtual premium on the family. The political economist of less than a century ago prayed for some force to stem "the relentless stream of babies," as H. G. Wells phrases it; now here we are bemoaning a falling birth-rate as "Race suicide!" *Tempora mutantur.* Would Malthus laugh or cry?

It is interesting to see the problems of preventive medicine forced upon the public notice by laymen. Here, for example, is another question,— the increase of insanity, which was made the occasion of remarks by Lord Rosebery, when opening, for the Edinburgh Lunacy Board, a model village where the insane are to be housed under almost ideal conditions; where the inmates, whilst protected from all the stresses of life, outside, will yet be free from the adverse influences of segregation in masses beneath one roof.

Lord Rosebery deplored, as well he might, the capital expenditure of twenty-five millions, the annual payment of three and a half millions, and the "waste" of so much administrative effort, upon the intellectually dead. He admitted that as yet preventive methods were all but futile; he admitted that it was no use to think of the suppression of marriages, and could only fall back on the "hope for a remedy in the teaching of a higher and better system of life, in the prevention of incessant restlessness. . . ." He has not yet the courage, or shall we say the hardihood, to face the problem biologically.

The Liverpool School of Tropical Medicine has been receiving honors, in the persons of Professors Ross and Boyce and Dr. Todd, from the King of the Belgians. The London School of Tropical Medicine, too, has not been without a meed of praise from Profesor Blanchard, who at the annual banquet acknowledged the debt owed by Paris to the example of the "parent institution."

David Goodsall, well known for his work on diseases of the anus and rectum, was for many years the treasurer of the Medical Society of London, and to him the society owed an assured financial position. I mention this because his death robs the profession of a type rare on this side, viz., a doctor who was also an able man of business and something more than a name in "the city."

The quatercentenary of Aberdeen University was the occasion for a brilliant assemblage of the leaders of the profession at home and abroad. The new buildings of Marischal College opened by the king will almost bear comparison with those of the new Harvard Medical School, pictures of which in the Boston Medical and Surgical Journal have made us all green with envy.

C.

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[1] See this Journal, Nov. 1, 1906.

RECORD OF MORTALITY

For the Week ending Saturday, Oct. 27, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,299	391	Quincy	4	3
Chicago	505	148	Waltham	4	2
Philadelphia . . .	469	129	Gloucester	—	—
St. Louis	—	—	Pittsfield	1	
Baltimore	204	50	Brookline	6	2
Cleveland	—	—	North Adams . .	3	0
Buffalo	—	—	Chicopee	2	1
Pittsburg	—	—	Northampton . .	15	3
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	8	2
Washington . . .	—	—	Hyde Park . . .	3	1
Providence . . .	65	19	Newburyport . .	—	—
Boston	204	47	Leominster . . .	1	—
Worcester	33	10	Melrose	—	—
Fall River	36	19	Woburn	4	1
Cambridge	22	9	Marlborough . .	2	0
Lowell	29	10	Westfield	—	—
Lynn	19	6	Peabody	—	—
New Bedford . .	23	6	Revere	2	1
Springfield	20	2	Clinton	2	0
Lawrence	23	7	Attleboro	3	1
Somerville	27	6	Adams	4	1
Holyoke	9	5	Gardner	11	2
Brockton	14	4	Milford	3	—
Malden	10	4	Weymouth . . .	2	0
Salem	14	2	Framingham . .	—	—
Chelsea	13	7	Watertown . . .	1	0
Haverhill	10	2	Plymouth	—	—
Newton	4	3	Southbridge . . .	6	3
Fitchburg	8	4	Wakefield	—	—
Taunton	12	4	Webster	—	—
Everett	7	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 24, 1906.

Gassaway, J. M., surgeon. Granted leave of absence for ten days from Nov. 4, 1906. Oct. 22, 1906.

Carrington, P. M., surgeon. Granted leave of absence for seven days, under provisions of paragraph 189 of the regulations, from Oct. 23, 1906.

Carrington, P. M., surgeon. Granted extension of leave of absence for fifteen days from Oct. 30, 1906. Oct. 24, 1906.

Cumming, H. S., passed assistant surgeon. Leave of absence granted Passed Assistant Surgeon Cumming for one month from Sept. 15, amended so as to grant him one month's leave from Oct. 4, 1906. Oct. 18, 1906.

Anderson, J. F., passed assistant surgeon. Granted leave of absence for one month from Nov. 5, 1906. Oct. 18, 1906.

Long, John D., passed assistant surgeon. Relieved from duty at Manila, P. I., and directed to proceed to San Francisco, Cal. Oct. 20, 1906.

Alexander, E., acting assistant surgeon. Granted leave of absence for seven days from Nov. 1, 1906. Oct. 20, 1906.

Fisher, C. E., acting assistant surgeon. Granted leave of absence for seven days from Oct. 17, 1906. Oct. 18, 1906.

Mason, W. C., acting assistant surgeon. Granted leave of absence for twelve days from Sept. 17, 1906. Sept. 4, 1906.

Simonson, G. T., acting assistant surgeon. Granted five days' leave of absence from Oct. 19, 1906. Oct. 20, 1906.

Straw, E. E., acting assistant surgeon. Granted leave of absence for twenty days from Oct. 15, 1906. Oct. 18, 1906.

Walker, T. D., acting assistant surgeon. Granted leave of absence for ten days from Oct. 18, 1906. Oct. 18, 1906.

Gahn, Henry, pharmacist. Granted leave of absence for twelve days from Oct. 22, 1906. Oct. 20, 1906.

Holt, E. M., pharmacist. Granted leave of absence for twenty-seven days from Oct. 26, 1906. Oct. 20, 1906.

APPOINTMENT.

Dr. **J. F. Blanchard** was appointed a temporary acting assistant surgeon for duty at Newport, Vt., in connection with the examination of alien immigrants. Oct. 22, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING NOV. 3, 1906.

J. C. Byrnes, medical inspector. Commissioned a medical inspector in the navy from Oct. 7, 1906.

H. B. Fitts, surgeon. Detached from "Lawton"; ordered to "Buffalo."

P. Leach, surgeon. Detached from "Indiana"; ordered home and wait orders.

G. P. Lumsden, surgeon. Detached from "Minneapolis" when placed out of commission; ordered home and wait orders.

J. M. Moore, surgeon. Detached from "Newark" when placed out of commission; ordered to "Indiana."

J. H. Iden, passed assistant surgeon. Detached from "Newark" when placed out of commission; ordered home and wait orders.

L. W. Curtis, surgeon. Ordered to "Connecticut."

H. E. Odell, passed assistant surgeon. Detached from "Wisconsin" when placed out of commission; ordered home and wait orders.

H. F. Strine, passed assistant surgeon. Detached from Naval Hospital, N. Y.; ordered to duty at Naval Hospital, Newport, R. I.

W. J. Zalesky, assistant surgeon. Detached from "Newport" when placed out of commission; ordered to duty at Naval Hospital, Portsmouth, N. H.

J. B. Mears, assistant surgeon. Detached from "Minneapolis" when placed out of commission; ordered home and wait orders.

W. G. Farwell, assistant surgeon. Orders to "Connecticut" revoked.

E. G. Parker, surgeon. Ordered to duty at Naval Hospital, New York.

W. B. Grove, surgeon. Detached from duty at the Naval Hospital, Boston; granted leave of absence for twenty days; thence to "Iowa."

F. M. Bogan, passed assistant surgeon. Discharged from treatment at Naval Hospital, Washington, and granted leave of absence for three months.

J. H. Payne, Jr., passed assistant surgeon. Ordered to duty with Marine Recruiting Party, Atlanta, Ga.

C. F. Ely, assistant surgeon. Ordered to duty at the Navy Recruiting Station, Buffalo, N. Y.

G. G. Hart, acting assistant surgeon. Detached from duty at the Navy Recruiting Station, Buffalo; ordered to duty at the Navy Recruiting Station, Providence.

W. H. Bucher, surgeon. Detached from duty at the Navy Recruiting Station, Providence; ordered to duty at the Naval Hospital, Boston.

Paul Dessez, assistant surgeon. Ordered to duty at the Marine Barracks, Washington.

J. G. Field, surgeon. Detached from temporary additional duty at the Marine Barracks, Washington.

SOCIETY NOTICE.

Massachusetts Medical Benevolent Society. — Since the meeting of the society held Thursday, Oct. 25, the following is a correct list of the officers of the society: Dr. James C. White, president; Dr. G. W. Gay, vice-president; Dr. W. L. Richardson, treasurer; Dr. W. H. Prescott, secretary; and the following trustees: Dr. E. H. Stevens, Dr. J. W. Pratt, Dr. Benjamin Tenney, Dr. J. S. Greene, Dr. George H. M. Rowe, Dr. C. F. Withington, Dr. Edward Cowles, Dr. S. W. Woodward, of Worcester, Dr. Paul Thorndike, of Boston.

RECENT DEATHS.

Dr. Thomas Stevenson, of New York, died suddenly on Oct. 27, in the forty-second year of his age. While in the office of his brother, Dr. George Stevenson, he was seized with pulmonary congestion, and his death occurred a few hours later. He was graduated from Bellevue Hospital Medical College in 1888.

Charles Vose Bemis, M.D., M.M.S.S., died in Medford, Nov. 6, 1906, aged ninety years.

BOOKS AND PAMPHLETS RECEIVED.

Rhythmotherapy. A Discussion of the Physiologic Basis and Therapeutic Potency of Mechano-Vital Vibration, to Which is Added a Dictionary of Diseases with Suggestions as to the Technic of Vibratory Therapeutics. By Samuel S. Wallian, A.M., M.D. Illustrated. Chicago: The Ouellette Press. 1906.

Practical Disinfection. Circular issued by the Illinois State Board of Health. Second revised edition. Springfield, Ill. 1906.

Applied Bacteriology. An Elementary Handbook for the Use of Students of Hygiene, Medical Officers of Health and Analysts. Revised and edited by Cresacre G. Moor, M.A. Cantab., F.I.C., with the co-operation of Richard Tanner Hewlett, M.D., F.R.C.P., D.P.H. Third edition. Illustrated. New York: William Wood & Co. 1906.

The Medical Student's Manual of Chemistry. By R. A. Witthaus, A.M., M.D. Sixth edition. Illustrated. New York: William Wood & Co. 1906.

A Text-Book of Histology. By Frederick R. Bailey, A.M., M.D. Second and revised edition. Illustrated. New York: William Wood & Co. 1906.

Address.

THE CLASSICAL SYMPTOMS OF HYSTERIA.*

BY PIERRE JANET, M.D.,
Professor of Psychology at the Collège de France; Director Psychological Laboratory, Salpêtrière.

VIII.

THE PSYCHOLOGICAL CHARACTERS OF HYSTERICAL ANESTHESIAS AND PARALYSES.

The moment has come to give our attention to some psychological studies on hysteria that had a great development in France about twenty years ágo; we shall insist on the mental character of anesthesia and try to derive from it a general conception which will find its application in the study of paralysis.

I. We have already seen that hysterical anesthesia presents certain oddities; for instance, it does not determine any serious objective disturbance, any serious atrophy, any modifications of the electric reactions, any change in the reflexes. The reflexes of pain, the vascular reflexes in relation with the sensations of cold or heat, remain intact. It is not the same with other insensibilities. This absence of objective disturbances is mostly accompanied with a very curious subjective symptom, namely the indifference of the patient. Very often many patients are surprised when you reveal to them their insensibility. We must add, too, that the form of these anesthesias has nothing anatomical about it and seems to correspond to false popular notions. This study leads us to point out a new character in the same order of ideas; namely, the remarkable mobility of these anesthesias, which vary from one moment to another under the influence of causes so slight that they may often pass unnoticed. The attacks, the natural sleep states, the intoxication especially by alcohol or by morphine, the artificially induced somnambulism, change entirely the state of the sensibility or of the insensibility. This state can also be modified even in a waking time by electricity, by magnets, by metal plates, and above all, by the influence of suggestions, by the association of ideas and by the modification of the subject's attention. Now we have to point out a second series of observations which complicates the problem of anesthesia still more, for they present it to us not only as changeable, but as contradictory. Many observations and experiments show us that the patients must feel perfectly well in the same moment that they pretend not to feel.

We cannot be content with the crude explanation that this insensibility is simulated and that our processes are only means to deceive a deceiver and unmask a fraud. We are happy to have Laséque confirm an opinion very interesting for us: Hysterical anesthesia is a certain species of absent-mindedness. Anesthesia is surely more than ordinary absent-mindedness. It is far from disappearing so easily as soon as the subject chooses, and, above all, it appears without there being any fixed idea or any object which attracts the patient's attention to another point. There is in it a pathlogical incapacity to collect elementary sensations in a general perception. Under normal conditions it is possible for the subject to realize this sensation, to connect it with his personality, to be able to say clearly, " It is I who feel; it is I who hear." Let us remark, by the way, that this singular character of anesthesia is not unknown to us; we have already seen something similar while studying the amnesias that follow somnambulisms. As we have seen about somnambulisms, in the anesthesias are groups of sensations forming a kind of system, that is to say, the *ensemble* of sensations coming from the hand or the leg which can no longer be connected with the totality of consciousness, although they still exist on their own account and even determine reflexes and usual movements.

Let us apply the same notions to our paralyses; we shall see that the facts are absolutely of the same kind. We notice in these phenomena a kind of indifference analogous to the one we remarked in anesthesia. These persons have not kept the remembrance of their limb; they do not know any longer what this paralyzed limb used to do; they can no longer make the efforts of imagination necessary to conceive it. However, the movement is not entirely lost; it can exist when the subject is not conscious of it. We find again in paralyses dissociations of psychological phenomena identical with those we observed in somnambulic amnesias.

There is but one difficulty left. What is the psychological phenomenon that dissociates itself? We must now recall certain forms of paralyses of which we have not yet spoken and which form the transition between the preceding phenomena of dissociation and the great paralyses. Some subjects, without presenting any true paralysis when one examines them in bed, are absolutely incapable of walking. For some time this disease, called astasia-abasia, seemed to be almost alone of the kind; but we are obliged to recognize that there were many other systematic paralyses belonging in the same category. These phenomena come much nearer to our somnambulic amnesia; it is always the loss of a system of images and movements. I will propose to you, not to consider abasia as an exceptional hysterical paralysis, but, on the contrary, to make it the type of all the other hysterical paralyses. The *ensemble* of the movements of the right hand, of both legs, of the right side, are systems of images and movements exactly as the *ensemble* of the movements necessary to play on the piano. Only it is a much more extended, and, above all, a much older system. No doubt you will say these great systems of sensations and images are at the same time anatomical systems which have a unity in the brain and in the spinal cord. The fact that a system is psychological should not cause us to conclude that it is not at the same time anatomical; on the contrary, the one involves the other. These very old functions have well-organized centers, but they are none the less functions, that is to say, complete systems of sensations and images. As the hysterical may lose, while she is troubled with somnambulism, a small system of thoughts that emancipates itself, which loss brings on two symptoms, somnambulic agitation and amnesia, so the same patient may in the same way lose through dissociation a great and old system of thoughts and sensations, that of the right side or that of the two legs; and this new dissociation will again manifest itself by two great symptoms: *first*, by involuntary motor agitations, which we studied in the last lecture in the form of choreas and of more or less extended tics; and *secondly*, by hysterical paralyses.

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* Author's abstract report of eighth, ninth and tenth lectures delivered at the Harvard Medical School, Nov. 1, 5 and 7.

IX.

THE DISORDERS OF VISION.

The sensorial disturbances due to hysteria constitute a very considerable chapter in pathology. We have already spoken of the tactile sense. We may also remark that these disturbances of the tactile sense are not quite separate, that they are nearly always connected with disturbances of motion. Remember this old remark of a French doctor to whom, in my opinion, justice has not been fully done, Dr. Burg: "Anesthesia," he said, "never exists without amyasthenia." You may also observe disturbance of tactile localization, particularly the singular phenomenon called allochiria, and which I studied formerly in my book, "*Névroses et Idées Fixes*," 1898, I, p. 234. I shall not insist further on the sense of smell and taste; their disturbances are nearly always associated with those of the functions of alimentation and breathing. We shall find them again when we study the troubles of the visceral functions. It would be more proper to devote a lecture to hysterical deafness, well studied formerly by Dr. Walton in *Brain*, 1883. To recognize it, remember that it is a central, not a peripheral deafness. Rinne's well-known experiment will give you information concerning this first point. This being once established, you will be able to make the diagnosis by studying the mobile and contradictory character of this anesthesia and by examining its evolution. But this is a sense so interesting for us from all points of view that I want to devote as much time as possible to the study of the diseases of vision.

I. You know now the general idea that directs us in the examination of the innumerable phenomena of hysteria; it is the idea of dissociation. Nowhere is this dissociation more precise and curious than in the case of vision. First, it may separate at once the whole of the visual functions from the *ensemble* of the mind; in other terms, it is hysterical blindness. This phenomenon is very rare, for it seems that the subject always keeps as much as possible the essential functions. However, we can study some cases of this accident after real or imaginary traumatisms of the eyes. In these cases the diagnosis is very difficult, and you cannot take too many precautions in examining the fundus of the eye and the state of the pupillary reflexes.

Happily, it is no longer so when we consider the incomplete and more frequent forms into which hysteria decomposes the visual function, doing away with only one part of it. The simplest and, if I may say so, the most amusing of these decompositions is unilateral amaurosis. This amaurosis presented itself in rather odd conditions and was for oculists an irritating problem. Subtle tests have been invented to find out what they think was a fraud. The two prettiest of these tests are the letters of Snellen and the box of Flees. With the researches of that period about this fact are connected the names of Regnard, Parinaud, Bernheim and perhaps also mine, if you will allow me to recall it, and we can resume in this manner the better interpretations. The existence of the two eyes and their position in the face of man gave birth to two different visions. First, there is the monocular vision, either separate or alternating, which is the only one with many animals, as horses, whose eyes are on each side of their heads. With animals as men, monkeys and some dogs, whose two eyes are nearly on the same plane, things are more complicated. These beings may have also another vision called binocular vision. Now it is very curious to see that hystericals are able to effect the dissociation of these two visions. They mostly lose the binocular vision. But sometimes, very rarely indeed, they lose the monocular vision of one eye while keeping the binocular vision, as I showed in my paper, "*Un Trouble de la Vision par Exagération de l'Association binoculaire.*" *Annales d'oculistique*, 1903.

II. We shall see that dissociation of vision will still gain ground and enter into more delicate functions. The most important symptom is the well-known narrowing of the visual field on which we should be able to dwell for a long time. By many patients the field is narrowed concentrically and nothing is left but the fixation point, and that becomes a characteristic sign of the neurosis. This contraction of the visual field is quite indifferent to the subject: it is one of the finest examples that can be shown of the persistence of subconscious sensations in hysteria. You see that this hysterical disturbance has not quite done away with the ocular perception in the lateral parts of the retina; it is again a dissociation like the preceding ones. We have two visions, — the central vision which is accurate and attentive, and the peripheric vision which is vacant and of secondary importance. You see that the hysterical keeps only the first consciously, the second persisting quite subconsciously.

I cannot end the examination of the visual field without saying a few words on a very curious problem in which I have taken a particular interest. Can we meet in hysteria with the hemiopical visual field or with the phenomenon of hemianopsia? The question is more important than it looks. After some fluctuations, physicians had come to absolutely deny the existence of hysterical hemianopsia and to reserve this symptom for organic lesions. I do not see any reason why the functional disturbance of hysteria should not produce the same symptoms as the organic destruction of the center of the function. Every function, as we said when treating of paralyses, finally has, when it is old, its organic center and, in certain cases, the functional and organic disturbances may be alike. There is no disturbance more symptomatic of a great lesion than motor hemiplegia, and nobody denies that it takes place in hysteria. M. Dejerine in 1896, I, myself, in 1897 and 1899, presented the first authentic observations of functional hemianopsia.[1] In a paper which appeared in *Brain*, 1897, M. Harris presented analogous cases. He pointed out, as I had done myself, some cases in which hysterical hemianopsia begins with amaurosis. It is at the time of the recovery from an hysterical amaurosis that the visual field takes the hemianopic form for some time. There is still now an old function of the vision to the right and another of the vision to the left and these functions can be dissociated in hysteria just as all the others.

III. I only point out the dyschromatopsia, and I insist that the perceptions and ideas play a great part in this dissociation of the small details of visions. I want to insist, also, on some other ocular accidents which lead to disturbances in the motion of the eyes. We have to consider paralyses, tics, contractures of the eyelids, with ophthalmoplegia. In this last case the immobility is purely in connection with will, the subconscious and automatic action is kept. These disturbances of the movements of the ocular muscles may be less simple and consist of spasms, in irregular contractures. Lastly, the internal muscles and particularly the muscles of the cystalline lens may be affected and the patient may have only a very limited accommodation. This spasm of accommodation is connected with a great many hysterical phenomena, monocular diplopia, polyopia, macropsia, micropsia.

X.

DISTURBANCES OF SPEECH.

Hysteria bears essentially upon the voluntary functions of motion, upon conscious perception, precisely reaches the mental level to which speech corresponds, and must determine very frequent disturbances in the expression of thoughts. It seems to me that far too much distinction is made between the troubles of speech in hystericals and the pathology of speech in general. Now, when in the papers of Dr. Marie, of Paris, the troubles of aphasia are brought nearer the disturbances of thought it is interesting to study the hysterical alterations of speech in which the modifications of all the consciousness is more evident.

I. In antiquity certain impairments of speech were noticed, the rapid evolution and the surprising cure of which seemed unaccountable. In the nineteenth century these descriptions became more numerous. We can show you many good examples after hysterical fits or after some emotions; in certain cases one must not forget that the accidents or the emotions bore on the organs of speech, or on the right side of the body or on the right-hand writing. The characteristic fact is that the subject does not try to answer, there does not even seem to be any idea or remembrance or wish to speak. Now you notice the second character of the affection, namely, the total absence of paralytic phenomena.

II. One of the things that, in my opinion, obscured this study at the outset is the difference that physicians at once wanted to establish between these hysterical mutisms and the aphasias accompanied with right-sided paralyses which were observed to succeed hemorrhages and softenings of the brain, and whose cerebral localizations were so eagerly studied in imitation of Broca. Hysterical dumbness seems to be at once more extended and more restricted. It is more extended, for in this case, motor speech is more distinctly done away with, and the subject does not seem even to make efforts to speak, as aphasic patients do. It is more restricted, for the disease seems to be limited to the expressions of words and not to impair the kindred phenomena as writing, reading and the understanding of words perceived by the ear or by the eye.

To these remarks, we must answer clinically. Hysterical dumbness, which Charcot described, is a type, a particular and striking case, which is very remarkable from every point of view, but was somewhat arbitrarily chosen. We have first to put beside it many attenuated or rather incomplete forms in which the function of language is analyzed as the visual function was before, as the aphonia, the stammering, the stuttering, etc. Many hystericals have disturbances of speech quite identical to those described as succeeding an apoplectic ictus. One case is described which we cannot designate otherwise than by the usual words of motor aphasia or aphemia with a certain degree of agraphia. Besides these cases, you can observe as many phenomena of agraphia as you please. Can we go further? Do there exist in hysteria word-blindness and word-deafness? For my part I am convinced of it, and I do not see why this dissociation should not take place when all the others do. In this respect, I recommend to you to study an observation which I published in the second volume of my book, "*Névroses et Idées Fixes*," page 456, and which bears on a case of hysterical word-deafness. The hysterical dumbness of Charcot is nothing but a more sharply differentiated, more isolated form of the disturbances of speech.

III. To understand the impairment of this function, we must make some remarks which are already known. In the preceding case of hysterical aphemia, there was aphasia in conscious and voluntary speech, and the normal expressions of thought reappeared only in the deliriums and automatic speech. Very often the normal speech reappears during the crisis, the deliriums, the somnambulisms, the dreams. More often still automatic and irrepressible words present themselves in the same patients before or after the period of dumbness. This verbal automatism should be placed beside the automatism of writing in the spiritualistic mediums. With the same group are also to be connected the tics of speech, which are numberless in the form of coprolalia, echolalia, etc., and many verbal hallucinations of inner words. Well, I believe that for this fact as for the preceding ones, this symptom of agitation, of automatic functioning of the functions, should be placed beside the paralysis of the same functions. Here again everything happens as if the system of the movements and images that constitutes speech separated from the personality and functioned in an automatic and at the same time inferior and, as it were, degraded manner.

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[1] Archives de Névrologie, mai 1897. Névroses et idées fixes, 1898, i, p. 263. La presse médicale, 27 octobre, 1896.

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Original Articles.

THE NEW CLASSIFICATION OF BENIGN TUMORS OF THE BREAST, WITH AN ILLUSTRATIVE CASE.

BY J. COLLINS WARREN, M.D., BOSTON.

The following case is reported as illustrative of the two principal types of benign tumors, both conditions occurring in the same breast, and also to show what can be accomplished in the treatment of non-malignant growths by conservative surgery, with the hope that many a breast that otherwise would be amputated may be saved. The nomenclature here employed has been adopted as the result of a study of 758 cases of tumors of the breast,[1] and which was embodied in the "Oration in Surgery" read by me at the annual meeting of the American Medical Association in 1905.[2]

As was pointed out in that paper, the old classification of tumors and diseases of the breast is extremely confusing, the pathologists in no two centers of learning using the same term to describe a given condition, and in comparing the classifications and terms used by the pathologists on one hand and the clinician on the other, the confusion is, if possible, worse. The classification that was brought forward and embodied in the paper referred to was an attempt on my part, while recognizing the claims of the pathologists, to make one that would be pathologically correct and at the same time be practical and adaptable to clinical use.

The breast differs from most other glands in the changes that it undergoes, — first at puberty, then during lactation and, lastly, at the menopause, — that is, it is for most of the time in a condition that may be termed one of unstable equilibrium, and the relation of its component parts differs markedly at different periods of life. It is also composed of two kinds of tissue, — fibrous and epithelial, — the relative proportions of each varying greatly at these different periods of life, but both of which enter into any tumor formation in the breast. In a classification of benign breast tumors it is necessary, therefore, to take both of these tissues into consideration, and for this reason the term applied by Ribbert of "fibro-epithelial tumors" has been adopted. In most of these tumors the fibrous element predominates, but in a few the epithelium plays the most important rôle. While this is a perfectly satisfactory term for the group of non-malignant breast tumors, it cannot be applied to that diffuse condition occurring at the menopause, which is often called "chronic mastitis," — an absolutely misleading term. Normally at this period of life the breast undergoes involution, with an increase in the fibrous tissue and the formation of some small retention cysts caused by pressure on the ducts. If this stage is prolonged, or accompanied by changes greater than would be normally expected, I have applied to it the term of "abnormal involution." This is synonymous with the so-called "chronic cystic diseases" of the breast, "chronic mastitis," "adenocele," etc. The condition is in reality a hyperplasia of one or both tissues which compose the breast to a greater or less extent. It is a diffuse process, and should not be confounded with the distinct tumor formations previously mentioned.

The following is the classification adopted in the previous article, the non-indigenous growths, inflammatory conditions, and carcinoma being omitted.

Fibro-Epithelial Tumors.
  (1) Fibrous type.
    1. Periductal fibroma.
    2. Periductal myxoma.
    3. Periductal sarcoma.
  (2) Epithelial type (cyst adenoma).
    1. Fibro-cyst adenoma.
    2. Papillary-cyst adenoma.
  Hyperplasia:
    1. Diffuse hypertrophy.
    2. Abnormal involution.
      Cystic.
      Proliferative.

Under the fibro-epithelial tumors the periductal fibromata are those tumors often termed simple fibromata, or intra-canalicular-papillary fibromata the adjective periductal being applied to designate their point of origin, — the periductal fibrous tissue, a tissue characteristic of the period of puberty. The periductal myxomata are myxomatous tumors originating in the same manner, and are comparatively rare. Most of them are in reality only edematous fibromata. The periductal sarcoma arises in the same manner, and appears as a very cellular fibroma. It is for all practical purposes non-malignant, and is distinct from the non-indigenous sarcomata of the breast.

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[1] Collected and analyzed by Drs. R. B. Greenough and C. C. Simmons.

[2] Jour. Am. Med. Assn., July 15, 1905.

In the epithelial group of fibrous tumors, the term fibro-cyst adenoma is applied to that rare tumor which is, in gross, similar to the periductal fibroma, but in which microscopically the epithelial proliferation, as shown by the large number of gland-like structures, is the striking feature. The papillary-cyst adenomata are those cystic tumors filled with papillary or glandular ingrowths of fibrous tissue covered with epithelium, and usually contain bloody fluid. They are commonly seen under the nipple, and are accompanied by a bloody discharge. They are identical with the " duct cancer," " villous papilloma " and " adenoma " of certain authors.

Benign tumors of the fibrous type are found in young women, that is, before they are thirty-five years of age. Benign tumors of the epithelial type are found later on in life; that is, between middle life and old age.

The hyperplasias in distinction to the fibro-epithelial tumors are diffuse processes. Of this group there are two varieties, — one diffuse hypertrophy, being practically a negligible quantity. The name is applied to the enormous hypertrophy of the breast sometimes seen at puberty or to that seen during pregnancy, and clinically the cases are of little interest other than as a curiosity.

The other division of hyperplasia, to which I have applied the name " abnormal involution," comprises that large group of diseases of the breast occurring in women at about the menopause, and characterized chiefly by increase in the fibrous tissue and cyst formation. These diseases have been attributed to inflammatory processes by some, regarded as new growths by others, while still others, and among them the greater number of recent observers, consider them involution changes. In this group the fibrous tissue is increased, while the ducts are dilated. The change is usually mainly fibrous, but if there is much epithelial increase the ducts may be filled with epithelial cells. In the more advanced forms, which are apt to progress into carcinoma, this epithelium may have a papillary or even an adenomatous arrangement within the ducts.

CASE. May, 1906. The patient, a woman, thirty-four years old, had been married one year but had had no children. The family and previous history were not remarkable. Eight years previous, that is when twenty-six years of age, she noticed a lump in the right breast which had increased slowly in size for a time, but had not changed for some years before consultation. The right breast had, since she was twenty-two years of age, been smaller than the left. She had had no pain at any time. During the last two years there was a slight watery discharge from the nipple. The catamenia were regular and normal, and were not accompanied by symptoms in the growth.

Examination showed a fairly well developed and nourished woman. In the lower inner quadrant of the right breast, which was slightly fuller than the left, was a hard tumor, the size of a small English walnut. This was not adherent to either the skin or muscle, and was not tender. The rest of the breast on palpation seemed to be slightly fuller and to contain more breast tissue than the other. The nipple was normal and examination failed to demonstrate any glands in the axilla.

The operation performed is that to which I have given the name " Plastic resection of the mammary gland." Recovery from the operation was uneventful. The stitches were removed on the sixth day, and the patient discharged soon after, wearing a breast bandage.

Pathological report, by Dr. C. C. Simmons. — The specimen was received in two portions. One consisted of a roughly triangular piece of breast tissue 1.5 cm. in breadth at the base and 5 cm. in length. On one surface this was covered by a moderately distinct fibrous layer, probably representing the fascia under the breast. Near the apex on the upper surface were several hard, rounded tumors varying up to 1 cm. in diameter. On section these were distinctly encapsulated, firm, of a grayish white color and traversed by numerous clefts. The remaining portions of this fragment were composed of normal appearing breast tissue.

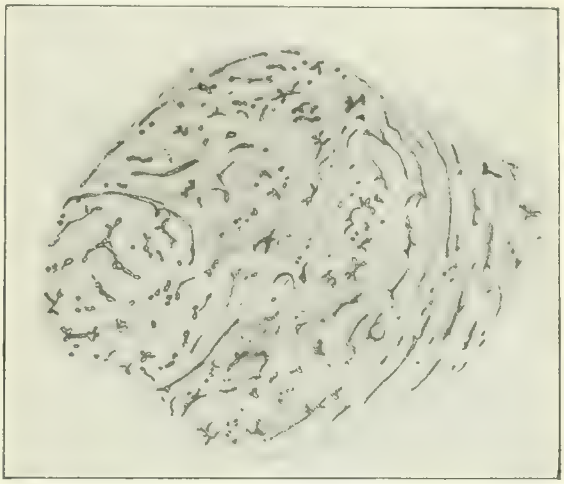

FIG. 1. Periductal fibroma. Characterized by an overgrowth of the periductal fibrous tissue with but secondary changes in the epithelial elements.

The other portion of the specimen was irregular in shape, roughly 2 cm. in diameter, and consisted of fibrous tissue in which were many small tumor-like areas ½ cm. in diameter or less. On section some of the tumors were similar to those of the large piece, while others presented numerous clefts, and in places there seemed to be distinct papillary projections.

Microscopic examination of the hard tumors from the larger piece showed encapsulated masses of dense fibrous tissue, which in places had undergone hyaline degeneration, traversed by numerous short branching clefts. (Fig. 1.) These clefts were lined with one or more layers of epithelium, and in their neighborhood the fibrous tissue was much less dense than elsewhere.

The characteristic of these tumors was the fibrous tissue, the epithelial elements having a distinctly secondary place.

Microscopic examination of the smaller piece showed an entirely different process. The ducts were dilated and lined with several layers of epithelium, which in some instances had a papillary or even adenomatous arrangement. Certain of these ducts contained branching fibrous papillary projections, covered with one or more layers of epithelium and formed distinct, small tumors. (Fig. 2.) In this specimen, therefore, the changes were primarily epithelial in character.

Diagnosis. Multiple periductal fibroma. Papillary-cyst adenoma. Abnormal involution with marked epithelial hyperplasia.

We have a rather unusual combination in this case, but one which illustrates well the two types of benign tumor of the breast, viz., the fibrous and the glandular. It also serves to illustrate the point that there is no well-defined line of separation between them, and that we cannot, therefore, group them separately. The term " true adenoma," as applied to tumor formation in the breast, must, therefore, disappear, and we must be content to recognize the fact that a small proportion of the benign tumors of the breast (fibro-epithelial tumors) are of a marked epithelial type, and have a right to be designated as belonging to the adenoma class (cyst adenoma). The fact that in benign tumors of the breast the fibrous tissue may sometimes predominate and that at other times the epithelial structures are the most characteristic feature, is one that we must also remember when considering the prognosis of a given case. For when we find so marked an epithelial activity in a tumor, even though it may be classified as benign, we cannot but feel that surgical intervention has been more than justified.

Plastic resection of the mammary gland: This operation consists in a reflection of the breast from below, upwards, in a manner to expose the posterior surface of the gland, and the removal of one or more v-shaped segments of the gland, the apex of the v coinciding with the central point of the circle.

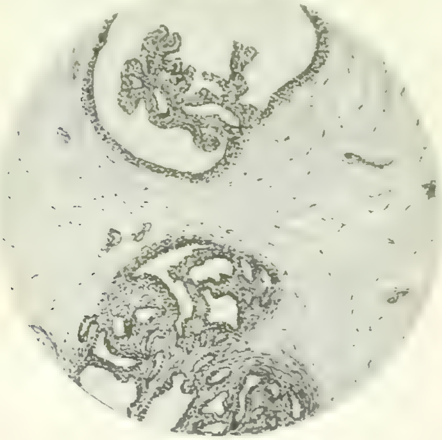

FIG. 2. Papillary-cyst adenoma. From beneath the nipple. The ducts are dilated and filled with fibrous papillary projections covered with epithelium. The changes here are mainly epithelial.

The preliminary incision is longer than that contemplated by Thomas, and runs from the lower inner quadrant along the fold of the breast to the inner border of the axilla. The incision should be carried down deep enough to expose the pectoralis major muscle. The dissection should then be carried along through the loose tissue overlying the pectoralis fascia, while with the left hand the operator lifts the breast upwards and inwards so that the entire posterior surface of the gland is exposed. The tumor can now be exposed by a radiating incision, if desired, or preferably removed entire in the center of a wedge-shaped mass of gland tissue, including the entire thickness of the gland. These fibrous tumors are not easily dissected out as the capsule is intimately adherent to the adjacent gland tissue. If necessary the remaining portions of the gland can be explored by radiating incision, but this is usually unnecessary, as the presence of a tumor in the gland can easily be detected by palpation, differing in this respect from the cases of abnormal involution or "cystic disease." The wedge-shaped cavity thus made should be sewed with a double row of catgut sutures, and no silk should be used either for suture or ligature. The gland is now dropped back upon the pectoral fascia and stitched firmly along its outer border. These buried sutures are useful in removing strain upon the surface.

I am in the habit of using silkworm gut for the skin suture.

The cavities of these tumors rarely give rise to sepsis, as they are usually sterile, but in the case of tumors of this character near the nipple, it is well to avoid opening during the operation. If, however, opening such a cavity is unavoidable, the wound should be disinfected before being closed.

The dressing should be held in place by the " empire bandage," a bandage which crosses obliquely in front, and is pinned like a diaper. Each end of this bandage is folded longitudinally in such a way as to produce lateral pressure upon the organ and hold the subcutaneous wounds firmly together. The ends of the bandage are then attached to suspenders crossing over the shoulders.

COMPOUND FRACTURE OF THE PATELLA. REPORT OF UNUSUAL CASE.* TABULATION OF ALL FRACTURES IN THE BOSTON CITY HOSPITAL IN FORTY-TWO YEARS.

BY DAVID D. SCANNELL, M.D.,
Assistant Visiting Surgeon, Boston City Hospital

THE case of compound fracture of the patella, which is here reported at length, when taken in connection with the other recorded cases of the same injury occurring at the Boston City Hospital since its beginning, must have a decided value in emphasizing the reparative power of the knee-joint, even under the most unfavorable circumstances.

P. H., sixty-three. Laborer. Jan. 27, 1906. Dr. David D. Scannell. Was admitted to the second surgical service of Dr. W. P. Bolles, to whom I am indebted for the privilege of reporting the case.

One and one-half hours before entrance patient fell down an elevator shaft, a distance of about seven feet, and landed on his flexed knee on a heap of old rusty iron pipe, about which was more or less coal and dirt.

Physical examination at the time of his entrance to the hospital was as follows:

Sensorium clear; pupils normal; heart negative; lungs showed a few moist râles throughout, associated with somewhat general harsh respiration; abdomen negative.

Local: Right knee presents a curved wound (almost as sharply defined as though made with a knife), about five inches long, with convexity downwards. The middle of this wound crossed the patella at the junction of the lower and upper three fourths, at which point there could be seen and felt an extensively comminuted fracture of the patella; even with the leg in extension, the knee-joint was practically wide open. Further determination of the injuries inside the joint was deferred until such time as the patient was anesthetized. Under ether, the thigh for twelve inches on either side of the knee-joint was thoroughly shaved and scrubbed with sterile water and soap by sterile hands. As much as twenty minutes was consumed in this preliminary step. After all who had participated in the preliminary cleaning had recleaned thoroughly, as for a fresh knee-joint operation, the joint itself was thoroughly examined as to further damage. Everywhere throughout the joint were stray small bits of coal, coal-dust, dirt and blood. Beside this foreign material free, the synovial membrane everywhere showed the same material thoroughly ground in. The articular cartilage on the condyles was in many places scooped off as though with a gouge, such areas oozing rather freely.

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* Case shown at meeting of Boston City Hospital Clinical Club Feb. 8, 1906.

The patella itself showed the following condition: The upper three fourths were a unit, the lower one fourth was extensively comminuted, many of the fragments having already been lost, and others so loose as to make removal necessary. Conditions seemed altogether hopeless for the securing of any kind of useful joint, even if extensive suppuration were escaped.

The knee-joint was thoroughly irrigated with salt solution and deliberately scrubbed with soap and water, and sterile gauze; to make this complete, the leg was flexed and extended until practically all the loose dirt was removed. Nearly one-half hour was spent in this process. The condyles of the femur, which in many places (five or six) showed a loss of articular cartilage (1 x 2 cm. in diameter), were thoroughly wiped off; similarly the upper surface of the tibia and the areas about the semilunar cartilages were wiped away. Where the tissues were badly lacerated considerable trimming was done. To facilitate the cleansing of the joint the original skin wound was enlarged on each side. As a result of these additional incisions, an appearance was produced as though one had made an incision for deliberate operation on a freshly broken patella. Wherever it was impossible to remove foreign matter by simple curettement, excision was done. In this way the whole synovial cavity, wherever it was accessible, was gone over. In conclusion, the joint was flushed out with ten to twelve quarts of salt solution; thoroughly sponged out with 70% alcohol; flushed out again with salt solution, and then gone over as a semi-final step with Harrington's solution.* A final irrigation of ten quarts of salt solution was the end of the cleaning process. Because of the loss of bony substance in the power portion of the patella an entirely satisfactory apposition could not be secured. A pursestring suture of chromicized catgut (No. 3) was passed round the patella, through the ligamentum patellæ and the tendon of the quadriceps femoris. This suture when tightened brought into contact one fairly large solid piece of the patella with many bone chips. The capsule was sutured carefully with chromicized catgut (No. 1); the edges of the original wound were excised to make fresh surfaces. At this point came up the question of drainage of the joint. We believed that under the circumstances, considering the amount of careful cleansing that had been done and discounting the tremendous injury of the joint itself, drainage could be dispensed with, though we had strong doubts as to the chances of getting a non-suppurating joint. The skin wound was closed by interrupted silkworm-gut sutures; a plaster from toe to groin was placed over a sterile dressing, the leg being held in slight over-extension. The time consumed for this entire operation was about two hours and one-half. Patient stood the operation well, the pulse being as good at the end as at the beginning of the procedure.

The convalescence after such a tremendous injury was remarkable; the wound healed by first intention without the semblance of pus either in the joint or in the skin. The temperature never went above normal, and at no time, even during the first few days, was there enough pain to make morphia necessary. The traumatic swelling, which was reasonably to be expected, subsided rapidly.

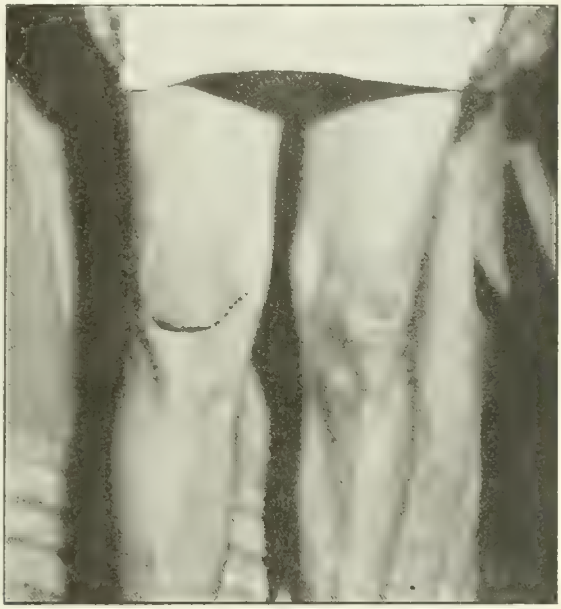

Fig. 1.

One month after the operation, the leg was removed from the plaster and skiagraphed; the fragments were found to be in perfect approximation. From this time onward, daily massage and passive motion of the knee-joint were done. Five weeks after the injury the patient was discharged from the hospital, without plaster, on crutches and bearing some weight on the foot. Locally there was only slight swelling of the whole knee-joint, more pronounced, of course, with the patient in the upright position; slight excess of synovial fluid; no pain; patella fragments apparently firmly healed and moving freely as a unit; about 15° of flexion easily obtained. From this time on, frequent massage and passive motion rapidly increased the motions of the joint, until four months, after the injury, the patient was able to get about with no more difficulty than before his accident. The accompanying illustrations show the condition at the end of four months. The solid line represents the original wound, and the dotted lines on either side, the extensions. The second photograph shows the patient's power of flexion of the thigh on the abdomen, with leg held stiff in extension, and the third photograph shows his power of flexion.

We believed that compound fracture of the patella was a rather uncommon injury, but it was not until we carefully looked up the records of all such fractures at the Boston City Hospital since its beginning that we realized that the condition was extremely rare; in the forty-two years of the hospital's history, with its thousands of fractures, there have been only seven other compound fractures of this bone. At the end of this article will be found a carefully classified list of fractures of all kinds occurring in this hospital.

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* Alcohol, 640, water, 300, hydrochloric acid, 60, corrosive sublimate, 0.8; solution of blue, q. s.

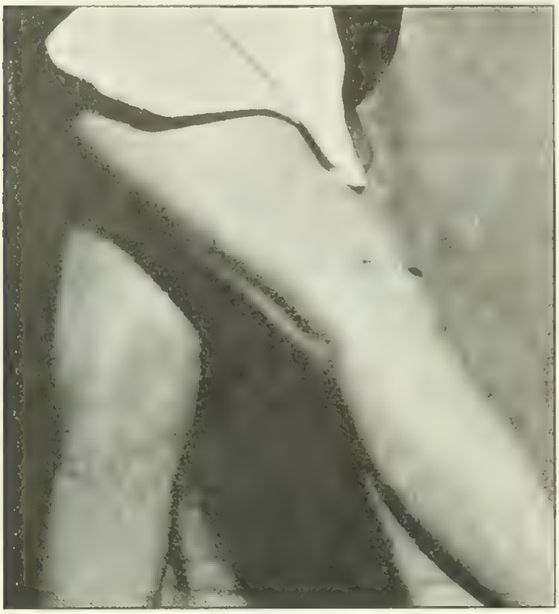

Fig. 2

We were interested enough in the subject to examine the histories of these seven cases in order that we might know how extensive the injury was, what methods were pursued at the time of operation, especially as to drainage, and what were the results; these we have briefly summarized below:

Case II. W. H., twenty-six. Carpenter. April 6, 1888. Dr. Abner Post. Four hours before admission patient fell from staging to ground; in considerable shock, and presenting many minor injuries beside the compound fracture of the patella. In this case the flesh wound was at the lower edge of the patella, horizontal in direction, and about one and one-half inches long. Under ether, Dr. Post made a vertical incision, about three inches long, extending upward over the original transverse wound. The lower fragment of the patella was found to be broken into many small pieces, which were removed. The upper fragment, which was about three fourths of the whole, was sutured with two silver wires to the ligamentum patellæ; the capsule was sewed up with silk sutures, and the joint, after being cleansed with soap and water, was irrigated with 1–3000 corrosive sublimate solution. A drainage tube was inserted into the joint, and the external wound closed except for the small space necessary for drainage. Iodiform powder was sprinkled about the wound and an antiseptic dressing applied; over this a plaster was applied from ankle to hip. The wound subsequently developed some pus, this apparently coming from the immediate portion of the joint drained by the tube. During the entire convalescence, iodiform powder was used on the surface of the knee. Three months from the time of injury, local examination by Dr. Post showed no effusion into the joint, no special tenderness, and free patella movement; motion of joint not tested. The end result of this case, as regards a functional use of the joint, we are unable to give.

Case III. W. P., forty. Stevedore. July 5, 1888. Dr. George W. Gay. Three hours before admission patient fell three feet, in the hold of a ship, striking on left knee. Local condition: transverse, rather cleanly-cut wound across the center of the left patella, which showed a compound comminuted fracture.

Operation by Dr. Gay. Under ether, patella was found to be broken into small fragments, eight of which had to be removed. Fair-sized fragments were attached to the tendon of the quadriceps femoris, and a very small piece to the ligamentum patellæ. The wound was cleaned out and irrigated with carbolic aicd 1-40; silver wire was passed through the upper fragments, and with a curved needle through the ligamentum patellæ, and the fragments fairly well approximated; wound drained; antiseptic dressing of carbolic acid and a ham splint applied. Wound subsequently developed a small amount of suppuration. Wound was frequently irrigated with 1-20 carbolic acid.

In six weeks discharge of pus ceased, and in eight weeks the ham splint omitted, and passive motion begun. End results, in this case, not ascertainable.

Case IV. T. M., thirty-five. Peddler. Aug. 24, 1889. Dr. H. L. Burrell. Patient had broken the right patella five years ago, and the left one, one year ago. Two hours before admission fell to ground with leg in flexed position. Local examination revealed a fracture of the left patella, transverse in direction, with a separation of the fragments of one and one-half inches. There was likewise a lacerated wound of the prepatellar tissues down to and exposing the joint; this wound was about four inches long.

Operation by Dr. Burrell. Wound was washed out with 1-1000 corrosive sublimate, and towels soaked in same were put about the leg near the joint; all superfluous tissue between the fragments was removed; and the exposed surfaces of the fragments three-sixteenths of an inch from the edge were sawed through with a metacarpal saw. Malgaigne's hooks were then applied, the lower one being put in first, and the two were then approximated with the key, and interrupted sutures taken in the flaps. A drainage tube was inserted under the patella, coming out at both sides of the joint; the pressure from the patella above, however, made irrigation through the tube impossible; in conclusion, the surface was washed with 1-500 corrosive sublimate solution, and a sterile dressing applied.

Operation lasted two and one-half hours; the leg was put up on an inclined plane. Subsequently the patient developed delirium tremens. One week after the operation, tube was removed; slight purulent discharge from joint and slight skin infection; subsequently more or less dry slough about the lateral portions of the wound. At the end of two weeks, patient died from pneumonia and delirium tremens.

Case V. N. B., thirty-seven. Teamster. March 11, 1891. Dr. W. P. Bolles. Three hours before entrance patient was kicked in right knee by a horse. Local examination showed, just below the patella, a small, roundish, jagged wound size of a five-cent piece, through which a probe entered the cavity of the knee-joint. The patella was fractured transversely at the junction of the upper and middle third; the lower fragment presented in addition a vertical fracture.

Operation by Dr. Bolles. Under ether, the skin was carefully washed and scrubbed; wound enlarged vertically; joint irrigated thoroughly with corrosive sublimate solution 1-3000 and then with 1-1000; patella fragments wired; incision closed; the antiseptic dressing and a plaster bandage applied from toes to groin. There subsequently developed a slight amount of suppuration, entirely outside the joint, however.

Three weeks after operation the wire, from the vicinity of which on the anterior surface of the patella the discharge appeared to come, was removed; the remaining wire was removed five weeks after operation. Patient was discharged from the hospital, with a firm wound, at the end of seven weeks.

Case VI. F. W. B., twenty-four. Painter. June 6, 1893. Dr. George W. Gay. Two hours before admission patient was thrown from wagon striking knee against curbstone. Over middle of left patella was a small incised wound, about three-fourths of an inch long, running obliquely downwards and inwards; this wound led down to a transverse fracture of the patella at the junction of the midde and upper thirds.

Under ether, after thorough cleaning of the parts about the knee with soap and water and corrosive sublimate solution, the wound was lengthened three inches in a vertical direction; all the lacerated tissue about the wound was excised, and the tissues about the synovial cavity and the patella were thoroughly recleaned. Two wires were passed through drill holes in the lower fragments and through the tendon of the quadriceps femoris above; the ends of the wires after being twisted were left protruding through the wound. Good apposition of fragments was secured. During the operation a stream of bichloride solution 1-3000 was kept constantly running into the wound. The wound was closed except for the point of emergence of the wires; antiseptic dressing and plaster of paris bandage applied to the whole of the leg.

One month from the time of operation, the wires were removed from the patella under cocaine; wound healed satisfactorily; no joint suppuration; no mention is made in the records of the state of the joint movement.

Case VII. B. G., ten. Schoolboy. Sept. 25, 1902. Dr. George H. Monks. Three hours before admission, patient was struck by locomotive and thrown against brick wall; no loss of consciousness; able to walk home despite profuse bleeding from joint. On examination at hospital, there was found a lacerated wound of the right knee connecting directly with fracture of the patella; no separation of the fragments.

Under ether, the wound was enlarged vertically, by the house surgeon, thoroughly cleaned, and the edges trimmed. A vertical compound fracture of the patella was found; all fringes between the fragments were cut away, and after the joint had been cleaned and copiously irrigated with salt solution, the fragments of bone were sutured with catgut; the capsule was sutured with the same material, and the operation wound closed with interrupted silkworm-gut sutures. Drainage was established from the joint by incision along the inner aspect of the patella, rubber dam being used as the drainage material.

During the three days following the operation, the patient showed evidence of septic intoxication, with considerable elevation of temperature, rapid pulse and severe constitutional reaction. There was a moderate discharge of bloody, serous fluid from the joint associated with more or less fibrin; moderate swelling with considerable tenderness.

Second operation deemed advisable, and performed by Dr. George H. Monks, three days later.

Under ether, old incision opened; all sutures removed; counter incision two and one-half inches long on each side of the patella; incision also in the popliteal space opening into the posterior part of the knee-joint; joint thoroughly cleaned out and irrigated. Rubber tubes and wicks were used for drainage and a hot corrosive dressing was applied about the knee. The joint was irrigated daily and fresh wicks inserted; profuse discharge of frank pus with considerable sloughing of soft parts. Two weeks after this second operation, a small incision was necessary over the tubercle of the tibia, to facilitate drainage. There was a progressive improvement in the general condition of the patient, though the discharge from the knee was still profuse, and the amount of pain and tenderness about the joint was marked. About one month after the original operation, the patient again showed signs of moderate septicemia, and an increasing discharge from the knee-joint, despite the frequency and care of the dressings. Patient seen by Drs. David W. Cheever and George W. Gay, who advised further exploration.

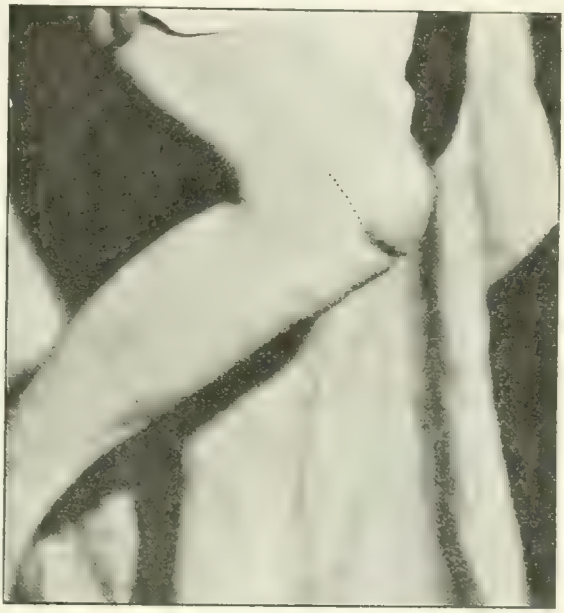

Fig. 3.

Under ether, one month from the time of injury, the knee-joint was thoroughly re-opened (Dr. George H. Monks); no collections of pus found, except on the inner aspect of the knee below the deep fascia. Following this operation for two weeks there was no local improvement, but moderate systemic betterment. The wounds showed evidence of healthy granulations and in about one month from this last operation were entirely healed; the knee was practically anchylosed in extension.

About three months after the injury the patient was etherized and about 10° of flexion was obtained with great difficulty. Discharged from the hospital with plaster bandage.

Case VIII. P. M. D., thirty-nine. Sept. 12, 1903. Dr. J. C. Hubbard. While under the influence of liquor, patient fell striking on left knee, which showed on examination a small lacerated wound, one inch long over the patella, with just below a transverse fracture through the middle of the patella, the lower half showing moderate comminution.

Operation, Dr. J. C. Hubbard. Under ether, the wound was thoroughly cleaned up and enlarged to form an elliptical flap, with convexity downwards; the joint was thoroughly washed out with salt solution;

several small pieces of bone belonging to the lower half of the patella, on the inner side, were cut out leaving most of the lower half as one large fragment. This was united with the upper half by a kangaroo suture on either side, good approximation being obtained. The capsule of the joint was sewed up with continuous catgut and the wound closed with silkworm gut sutures; no drainage; corrosive sublimate dressing and a ham splint. For four or five days after the operation, there was a moderate irregular temperature, and some redness about the joint, especially along the line of incision; joint not especially tender. Rapid improvement followed the removal of the stitches and the escape of bloody serum. A little over one month from the time of operation, massage and passive motion begun, and a little over one and one-half months from the time of injury, flexion to the extent of 20° was easily secured.

Considering the exposed position of the patella and the frequency of its fracture, it is rather remarkable that open fracture of this bone is in reality a relatively rare occurrence. To determine just how rare this condition is, all the fractures occurring in the Boston City Hospital from May 24, 1864, to Dec. 31, 1905 (nearly forty-two years), were tabulated and classified. A desire to know what were the results and whether or not drainage was employed also prompted the inquiry. In the eight cases reported here it will be noted that four were drained, and that an equal number were closed without drainage. In 3 (three) of the cases there was no suppuration of any kind; in 1 (one) there was a slight prepatellar infection; in 3 (three) there was a brief and harmless suppurative discharge from the immediate part of the joint drained, not producing constitutional symptoms nor damaging the joint; in 1 (one) the suppuration was extensive. Therefore from a practical point of view, there was no joint suppuration in seven of the eight cases. Considering the legitimate dread felt by most surgeons when the question of knee-joint operations is considered, this is surely contrary to what one would expect. While looking up the frequency of this fracture in the records of the hospital, it seemed worth while to classify all fractures as to the frequency of their occurrence in certain bones during the forty-two years of the hospital's existence, with the thought that such statistics might be profitable in a comparative way as showing possibly the influence of modern conditions in modifying the numerical occurrence of certain fractures. The commonly quoted statistics, having to do with fractures in large numbers are those of Gurlt,[1] who published in 1862 the list of fractures treated in the London hospital. His figures are as follows:

	Total	Per Cent.	No. by Regions	Per Cent.
Skull,	757	1.457	Head, 2,002	3.854
Face,	1,245	2.397		
Spine,	172	0.331	Trunk, 9,067	17.457
Pelvis,	142	0.273		
Coccyx,	15	0.028		
Ribs,	8,261	15.905		
Sternum,	52	0.100		
Scapula,	425	0.818		
Clavicle,	7,840	15.094	Upper Extremities, 27,119	52.214
Arm,	4,084	7.863		
Forearm,	9,440	18.175		
Hand,	5,755	11.080		
Thigh,	3,243	6.243	Lower Extremities, 13,750	26.473
Patella,	664	1.278		
Leg,	8,323	16.324		
Foot,	1,520	2.926		
	51,938			

We find that during the period from May 24, 1864, to Dec. 31, 1905, there were at the City Hospital 38,627 fractures of all kinds. Of these, 34,994 were simple or closed fractures; 3,633 were open or compound fractures, and 381 unclassified, these latter including various old and ununited fractures. Omitting the unclassified fractures, we have, for purposes of comparison with Gurlt's statistics, 34,613 simple or closed fractures. Of these simple fractures the order of frequency is as follows:

		Per Cent.
1	Radius,	4,657 (13.45)
2	Humerus,	3,517 (10.16)
3	Ribs,	3,196 (9.23)
4	Femur,	2,898 (8.37)
5	Clavicle,	2,756 (7.96)
6	Fibula,	2,344 (6.77)
7	Metacarpus,	1,285 (3.71)
8	Tibia,	1,259 (3.63)
9	Skull,	992 (2.86)
10	Tarsus,	947 (2.73)
11	Phalanges (up. ext.),	798 (2.3)
12	Inf. maxilla,	692 (1.99)
13	Patella,	660 (1.9)
14	Ulna,	630 (1.82)
15	Facial Bones,	538 (1.55)
16	Carpus,	495 (1.43)
17	Vertebræ,	331 (0.95)
18	Scapula,	256 (0.73)
19	Pelvis,	208 (0.60)
20	Metatarsus,	168 (0.48)
21	Phalanges (low. ext.),	78 (0.22)
22	Sup. maxilla,	70 (0.20)
23	Sternum,	40 (0.11)
24	Coccyx,	20 (0.05)
25	Hyoid,	1 (0.002)
	Both bones of the leg,	3,902 (11.2)
	Both bones of the arm,	1,875 (5.1)

Of the compound or open fractures, of which we have 3,633, the order of frequency is as follows:

		Per Cent.
1	Skull,	525 (14.45)
2	Phalanges (up. ext.),	488 (13.43)
3	Metacarpus,	272 (7.48)
4	Tibia,	238 (6.5)
5	Humerus,	219 (6.02)
6	Tarsus,	203 (5.58)
7	Carpus,	152 (4.8)
8	Femur,	146 (4.01)
9	Facial bones,	119 (3.27)
10	Phalanges (low. ext.),	69 (1.88)
11	Inf. maxilla,	66 (1.8)
12	Radius,	64 (1.7)
	Ulna,	64 (1.7)
13	Fibula,	62 (1.7)
14	Metatarsus,	27 (0.74)
15	Sup. Maxilla,	10 (0.27)
	Clavicle,	10 (0.27)
16	Ribs,	8 (0.22)
17	Patella,	7 (0.19)
18	Pelvis,	6 (0.16)
19	Scapula,	3 (0.08)

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[1] Handbuch d. Lehre von den Knochenbruchen. Hamburg, 1862.

			Per Cent.
20	Vertebræ,	1	(0.02)
	Sternum,	1	(0.02)
	Both bones of the leg,	610	(16.7)
	Both bones of the arm,	262	(7.02)

Taking classified fractures of all kinds (closed and open), we have a total of 38,246. Here the order of frequency is as follows:

			Per Cent.
1	Radius,	4,631	(12.1)
2	Humerus,	3,736	(9.7)
3	Ribs,	3,204	(8.6)
4	Femur,	3,044	(8.2)
5	Clavicle,	2,766	(7.2)
6	Fibula,	2,406	(6.3)
7	Metacarpus,	1,557	(4.07)
8	Skull,	1,517	(3.96)
9	Tibia,	1,497	(3.91)
10	Phalanges (low. ext.),	1,286	(3.36)
11	Tarsus,	1,150	(3.06)
12	Inf. maxilla,	758	(1.98)
13	Ulna,	694	(1.84)
14	Patella,	688	(1.83)
15	Facial bones,	657	(1.71)
16	Carpus,	647	(1.69)
17	Vertebræ,	332	(0.86)
18	Scapula,	259	(0.68)
19	Pelvis,	214	(0.56)
20	Metatarsus,	195	(0.50)
21	Phalanges (low ext.),	147	(0.38)
22	Sup. maxilla,	80	(0.20)
23	Sternum,	41	(0.10)
24	Coccyx,	20	(0.05)
25	Hyoid,	1	(0.002)
	Both bones of the leg,	4,512	(11.7)
	Both bones of the arm,	2,137	(5.6)

Considering now the number of fractures by regions we have:

Skull, Face,	Head,	2,174	5.6%
Spine, Pelvis, Coccyx, Ribs, Sternum, Scapula,	Trunk,	4,070	10.65%
Clavicle, Arm, Forearm, Hand,	Upper Extremities,	17,484	45.5%
Femur, Patella, Leg, Foot,	Lower Extremities,	13,639	35.6%

THE USE AND ABUSE OF INJECTIONS IN ACUTE GONORRHEAL URETHRITIS.

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THE title of this article has been purposely worded "Acute Gonorrheal Urethritis" to convey the distinction that discharges from the urethra in the male may exist independent of urethral disease, independent of gonorrheal infection, and even independent of organic involvement. By organic disease I have reference to anterior and posterior urethritis, and the various inflammations of the bladder, prostate gland and seminal vesicles, as distinguished from non-inflammatory varieties as classified so ably under the head of "functional disorders" by Thompson[1] who describes them as urethrorrhea, prostatorrhea, spermatorrhea, and phosphaturia. Given a case of acute urethral discharge which by the nature of an inflammatory process is found to be organic in character, and which after microscopical examination of the inflammatory discharge is determined as gonorrheal in origin, when should injections be begun, and what should be the character of these injections? By the term "injection" I do not refer to irrigations of the urethral canal, by the physician, which have their distinct place in the treatment of gonorrhea, and especially if carefully carried out according to the method of Valentine; but I have reference to the use of injections on the part of the patient himself, the indiscriminate use of which has been fruitful of many unpleasant consequences.

In the first place I am opposed to the so-called "abortive" methods of treating gonorrhea by means of powerful astringent substances, such as nitrate of silver, although the latter drug has its distinct usefulness in the latter stages of the disease. My chief reason for opposing it in the acute stages of gonorrhea is, that if it is capable of destroying the gonococci, it cannot do so without an overbalancing amount of injury to the urethra in the acute inflammatory stage, and furthermore the patients usually do not present themselves until the gonococci have penetrated to the submucous tissues, and practically beyond the contact of desirable drugs. It has therefore been my custom to withhold injections on the part of the patient until the acute inflammation had subsided and the character of the discharge had changed from a purulent to a muco-purulent character. I have now somewhat modified this restriction, as hereafter described.

Drugs are only adjuncts in the treatment of gonorrhea. Before they are used or prescribed the patient should be impressed with the necessity of rest, the regulation of his habits and diet, the avoidance of alcohol, coffee, tea, and all highly seasoned and spicy food. The bowels must be kept well regulated, and it is absolutely essential that the urine be kept in a bland condition. Absolute cleanliness should be enjoined, and sexual intercourse emphatically interdicted. As a urinary antiseptic I am accustomed to administer urotropin in five-grain doses three or four times daily. The wearing of the suspensory bandage has its distinct advantages as a mechanical support.

It has often occurred to me that there is indicated in acute inflammations of the urethra some drug which by reason of a deposit left upon the mucous membrane would act as a sedative and perhaps as a very mild astringent. The excellent effect produced by large doses of bismuth administered in catarrhal conditions of the stomach and intestines has been the incentive that caused me to institute a similar procedure in gonorrhea. The insolubility of most of the bismuth salts offered great difficulties, until I had occasion to employ a combination of bismuth subcarbonate and hydroxide in a fine state of sub-division, suspended in water, manufactured under the name of Lac-Bismo, each fluid dram of which contains two and one half grains of the combined salts. An examination under the microscope of this preparation demonstrated the minuteness of its subdivision in suspension as greater than that of any other bismuth preparation examined. It should be used at first diluted one half with distilled water and rapidly increased in strength, only small quantities at a time being used. If the patient carefully follows the directions as to the proper method of injecting, and the injection is not intrusted to him until the instructions have been rigidly impressed, we have in bismuth a most valuable adjunct in two respects. First, as a mechanical cleansing agent in the acute stage, when it will accomplish the removal of considerable pus and epithelial débris. For this purpose I am accustomed to use it in the form of an irrigation by means of a soft rubber catheter, of small calibre, the solution being about 15% in strength. The second advantage to be derived from this preparation is its soothing effect upon the mucous membrane of the urethra, this effect being no doubt analogous to the effect of bismuth upon the gastric mucous membrane in catarrhal conditions of that structure. In a case of acute gonorrhea, recently under my observation, the pain after urination was much diminished after an injection of a 50% solution of Lac-Bismo. with marked diminution in the acuity of the gonorrheal process. It should be remembered, however, that the combination of bismuth salts above referred to is most effective when the urine is in a bland condition, that is, not highly acid. A careful examination by means of the urethroscope will show that bismuth will become deposited upon the urethral mucous membrane in precisely the same manner as it does within the stomach and intestines, and that it owes its beneficial effect to its specific value as a mild antiseptic protective and local sedative. If the urine is not too concentrated in acidity bismuth will assist considerably in neutralizing it. In two cases recently coming under my observation the acute pain during micturition was promptly alleviated by injections of one-half ounce of Lac-Bismo slightly diluted with water before urination, while the discharge and swelling correspondingly decreased. The subsequent micturition was only slightly painful without a previous injection of the bismuth solution, showing that the first injection was still manifesting its protective influence; thus, the diminution of the irritating effects of the urine caused either by reason of its acidity or mechanical influence during its propulsion through the urethra must necessarily have an appreciable influence upon the promotion of resolution.

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[1] Med. Rec., vol. lxviii, no. 27, Dec. 30, 1905.

In the case of the bismuth solution I have made an exception regarding injections during the early stage of the disease. While I am satisfied that highly astringent and corrosive substances are contra-indicated I am equally satisfied that a cleansing, mildly antiseptic and mildly astringent solution like Lac-Bismo is indicated for cleansing purposes, for precisely the same reason that would govern the employment of similar solutions in inflammatory conditions elsewhere when characterized by discharge and exudation of destroyed epithelial tissue. If these injections are used before urination their penetration into the posterior urethra is minimized by reason of their extensive dilution from the subsequent urination; and if this urination is not performed until about five minutes after the injection, their effect will be sufficiently long to greatly overcome the pain caused from urination. I would not hesitate to use the bismuth solution in posterior instillations. At the risk of repetition I want to emphasize again the necessity of carefully instructing the patient as to the manner of injecting, and that only a blunt-pointed hard-rubber syringe of small capacity should be employed, that the tip of the same should be well lubricated before using, that the injection should be slowly and carefully made, that the solution should be retained from two to three minutes which is especially necessary in a case of bismuth, as any precipitation of the salts resulting within the urethra is a distinct advantage for reasons already indicated.

My preference for a solution containing the subcarbonate of bismuth is due to its value as an antacid, an advantage which far exceeds the subnitrate or subgallate. After the acute stage has subsided but the discharge still remains thin and serous in character I have found it of advantage to combine the sulphate of zinc or hydrastine with the bismuth solution. The formulæ which have proved quite successful in my hands, are as follows:

℞	Ext. hydrast. (colorless),	f ʒiii
	Lac-Bismo,	f ℥ii
	Glycerin,	f ʒiii
	Aquæ destillatæ,	q. s. f ℥vi

or

℞	Zinc sulphocarb.,	gr. x
	Lac-Bismo,	f ℥ii
	Glycerin,	f ʒii
	Aquæ destillatæ	q. s. f ℥vi

Under no circumstances should injections be used when there is swelling, edema, or much sensitiveness of the urethra.

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In view of the devastation caused by the sleeping sickness among the natives of certain districts of the Congo Free State, as well as among Europeans residing there, the king of Belgium has offered a prize of 200,000 francs to any person of any nationality who shall discover a cure for the said sickness, and also an additional sum of 300,000 francs for the purpose of making researches and experiments toward exterminating the plague.—*Science.*

Medical Progress.

PROGRESS IN THERAPEUTICS.

BY FREDERICK T. LORD, M.D., BOSTON, MASS.

THE TREATMENT OF TUBERCULOSIS BY INOCULATIONS OF TUBERCLE VACCINE, CONTROLLED BY THE TUBERCULO-OPSONIC INDEX. (WRIGHT AND DOUGLAS.)

Prof. A. E. Wright believes that immunity in infectious disease is intimately associated with the existence in the blood fluids of substances which, acting on bacteria, render them an easy prey to the leucocytes. These substances thus promoting phagocytosis and immunity have been called opsonins by Wright. The evidence in favor of the presence in the blood of such substances and their behavior under various conditions is set forth in a recent paper by Potter, Ditman and Bradley[1] and need not be further discussed here.

Wright believes that the amount in which they are present in the blood fluids may be demonstrated by mixing the serum of the patient in question with an equal quantity of washed leucocytes and an emulsion of bacteria, maintaining the resulting mixture at body temperature for a definite period and determining the number of bacteria ingested by the leucocytes. In the calculation of the opsonic power of a given blood to tubercle bacilli — or, more technically, the tuberculo-opsonic index — the average number of tubercle bacilli in the white cells under the influence of the patient's blood is compared with the number of tubercle bacilli ingested under otherwise similar conditions, but with serum from a healthy individual as a control. Regarding the average number of tubercle bacilli ingested under the influence of the normal serum as unity, the opsonic index is determined by dividing the number obtained in the presence of the patient's serum by that obtained with the normal serum. The technique of the procedure is described in an article by Kinghorn and Twitchell.[2] Considerable difficulty has been experienced by others in mastering Wright's technique.

THE OPSONIC INDEX IN HEALTH.

Bullock[3] determined the opsonic index in 84 apparently healthy persons, comprising 44 medical students and 40 hospital nurses. In all cases their serum was compared with his own, which was regarded as unity. An average index of 0.96 was obtained for the 84 persons, the variations ranging from 0.8 to 1.2.

Potter, Ditman and Bradley[4] made 81 observations on 19 apparently healthy individuals, obtaining an average opsonic index of 0.988, with a range of from 0.73 as a minimum to 1.25 as a maximum. In four of the 19 persons, the variations were as follows: 0.84 to 1.18; 0.81 to 1.10; 0.88 to 1.10 and 0.92 to 1.06.

THE OPSONIC INDEX IN TUBERCULOSIS.

Bullock,[5] using the average opsonic index of 0.96, in health, from his previous work, as a comparison, determined that the average for 150 cases of lupus was 0.75. In 6 cases the opsonic index was from 0.2 to 0.4; in 105 cases, from 0.4 to 0.8 and in the remaining 39 patients from 0.8 to 1.4. Thus among the 150 cases, 75% showed an opsonic index below the lowest normal index of 0.8.

In 11 cases of surgical tuberculosis, comprising two cases of tuberculosis of the knee, one of the spine, a tubercular abscess of the gluteal region and tubercular peritonitis, tuberculosis of the humerus and hip, 2 cases of tuberculosis of the lymphatic glands and 4 of the genito-urinary organs, Bullock[6] similarly found that the opsonic index was below 0.8 in all but one, with an average of 0.6.

In 16 cases of tuberculosis, examined by Wright and Douglas[7] and including tuberculosis of the skin and subcutaneous tissue, tubercular laryngitis, cystitis, peritonitis, prostatitis and tubercular glands, the indices ranged from 0.4 to 0.9.

Potter, Ditman and Bradley[8] determined the tuberculo-opsonic index in 39 cases of tuberculosis as follows: In 22 cases of tuberculosis of the bones (spine, hip, knee, ankle, tarsus and tibia) the index was above 1 in 5, below 1 in 14 and normal in 3. In pulmonary phthisis, of which there were 14 cases, the indices ranged from 0.41 to 1.37. In isolated cases of lupus and tubercular glands, the indices varied from 0.96 to 1.51.

THE OPSONIC INDEX IN HEALTH AND IN TUBERCULOSIS.

Though the above articles do not include all the publications dealing with the determination of the opsonic index in health and in tuberculosis, they are representative and afford data for comparison. In general it may be said of them that the tuberculo-opsonic index is lowered in tuberculosis. It should also be noted, however, that variations are common and that the differences between the tuberculo-opsonic index in health and in tuberculosis is often slight.

Bullock's series of cases may be taken for comparison. Among 84 healthy individuals, the average tuberculo-opsonic index was 0.96. Among 150 cases of lupus it was 0.75. Though the average number of bacilli ingested by each leucocyte is not given in his paper, the average number of bacilli per leucocyte in the two series as a whole can be readily calculated from the data given. This number may, for the purpose of calculation, be called x. Then according to the definition of the opsonic index, it is the number obtained by dividing the average number of tubercle bacilli ingested by each leucocyte, in the presence of the patient's serum, by the average number of tubercle bacilli, similarly ingested, in the presence of the serum from a healthy individual. In Bullock's series, he used his own serum, with a tuberculo-opsonic index of one as the denominator in the calculation. In the series of 84 healthy individuals, the average number of tubercle bacilli ingested in the presence of their serum, or x, may be determined as follows: $\frac{x}{1} = 0.96$ or $x = 0.96$.

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[1] Am. Jour. Med. Sc., Aug., 1906.

[2] *Ibid.*

[3] The Lancet, Dec. 2, 1905.

[4] *Loc. cit.*

[5] *Loc. cit.*

[6] *Loc. cit.*

[7] Proc. Royal Soc., 1904, vol. lxxiv.

[8] *Loc. cit.*

In the calculation of the tuberculo-opsonic index among the 150 cases of lupus, in which the figures 0.96 were taken as the denominator, the average number of tubercle bacilli ingested by each leucocyte was: $\frac{x}{0.96} = 0.75$ or $x = 0.72$.

In other words, the difference between the normal serum and that from the cases of lupus may be said to be that in the presence of serum from the healthy individuals each leuocyte was capable of ingesting on an average 0.96 tubercle bacilli, while in the presence of the serum from the cases of lupus 0.72 bacilli were similarly ingested.

Bullock does not state in relation to these cases the number of leucocytes which were counted in each test to determine the average number of bacilli per leucocyte. Wright [9] has stated that he counts the bacilli found in the first 30 to 40 leucocytes for this purpose.

Kinghorn and Twitchell [10] paid special attention to the possible error arising from the enumeration of so small a number of leucocytes. In six experiments, they tabulate the variations in counts of 25 leucocytes, showing that such counts in eight trials may vary from 0.66 to 1.8 tubercle bacilli per cell; from 0.84 to 1.52; from 0.88 to 1.96; from 1.08 to 2.24; from 3.52 to 4.60; and from 2.32 to 4.60. They conclude that "while it is true that the bacilli counted in 20 to 30 leucocytes may indicate in some cases the correct relation between a normal and a tuberculous serum, when all the conditions are favorable as to sera and technique, we have found that an accurate count requires from 100 to 200 cells."

GENERAL PRINCIPLES IN THE INOCULATION OF BACTERIAL VACCINES AS APPLIED TO TUBERCULOSIS.

From his work on the opsonic index, Wright [11] has come to the conclusion that viewed from the standpoint of this opsonic index bacterial infections naturally distribute themselves into two classes. In one class, he places those in which the opsonic power in respect to the infecting micro-organism hardly varies from day to day, remaining always inferior to that of the normal blood. This class is represented clinically by the strictly localized infections. In the second class, the opsonic power is continually fluctuating, ranging from far below to far above the normal. This relation is found to obtain in the systemic infections.

This difference in the two classes is believed to be due in the strictly localized infections to a lack of immunizing stimuli from the site of the infection to the blood. In these local infections, bacteria cultivate themselves in a region of lowered bacteriotrophic pressure, shut off from the rest of the body by a zone of tissue which prevents on the one hand the egress of immunizing stimuli and on the other the ingress of anti-bacterial substances from the blood. In such cases, Wright believes that the natural defensive powers of the organism may be stimulated by the inoculation of properly adjusted and interspaced doses of the corresponding bacterial vaccine. In the systemic infections, on the contrary, there may be supposed to be a delivery from the original focus or foci of infection of oftentimes ill-adjusted and inappropriately interspaced auto-inoculations. In these systemic infections, the artificial inoculation of the corresponding vaccine may be hazardous from the danger of overtaxing the patient's power of resistance. Thus the systemic infections offer less hope of cure by inoculations. In comparatively light attacks, however, such for example, as of Malta fever, Wright has ventured to further stimulate the immunizing power of the individual by a carefully safeguarded series of inoculations.

In explanation of the prevailing low opsonic index in localized tubercular infections, Wright assumes that it is a condition which dates back to a period anterior to infection.

In his treatment of localized tubercular infections, Wright uses Koch's New Tuberculin in doses usually of from 1-1000 to 1-600 mgm.[12] Following such an inoculation, there is a decline in the antibacterial power of the blood, the particular antibacterial element which he has measured being, in the large majority of the cases, the opsonin. This decline in antibacterial power he calls the "negative phase," and it may or may not evidence itself clinically by a temperature reaction and constitutional disturbance, which, however, are unnecessary for a satisfactory response to the injection. Upon the "negative phase" there follows a "positive phase," the characteristic feature of which is an increase in the antibacterial power of the blood, indicated by an increase of the opsonic index and corresponding to a period of increased resistance. With the climax of the "positive phase" there is in many cases a sense of increased physical vigor and a very pronounced feeling of well-being. After the "negative" and "positive phase" "the blood may be maintained for a variable period (after tubercle inoculations, for as long as a month) at a somewhat higher level of antibacterial power than before inoculation. Or — and this in connection with inoculations with tubercle vaccine is a more usual event — the antibacterial power of the blood may, over and over again, fall back after ten days or a fortnight to the level at which it stood anterior to the inoculation." The especial advantage of determining the opsonic index and thus measuring the antibacterial power of the blood lies in the elimination of the danger of overtaxing the patient's power of resistance by an accumulation in the direction of the " negative phase."

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[9] Clin. Jour., Nov. 9, 1904, p. 58.

[10] *Loc. cit.*

[11] The Lancet, Dec. 2, 1905.

[12] The doses refer to the weight of the tubercle powder employed.

THE RESULTS OF TREATMENT WITH TUBERCLE VACCINE IN WRIGHT'S CASES OF LOCALIZED TUBERCULOSIS.

Wright's series [13] comprises 17 cases of tuberculosis, localized as follows: Tubercular ulceration of the subcutaneous tissues and bones, 7 cases; tubercular invasion of the lymphatic glands, 5 cases; tubercular disease of the genito-urinary system, 5 cases.

TUBERCULAR ULCERATION OF THE SUBCUTANEOUS TISSUES AND BONE.

Site and extent of the lesions. — The lesions in these seven cases consisted of ulceration of the skin and subcutaneous tissue, and in two of them (cases 2 and 3) the bony system was invaded. In three of the patients (cases 1, 2 and 5) the disease is stated to be tubercular. A fourth case (Case 3) is classed as lupus. Of the remaining 3 cases, one (Case 4) showed abscess formation on the leg in the region of the ankle; another (Case 6) " an inflammatory knobby tumefaction of the subcutaneous tissues in the region of the jaw and over a considerable area in the throat," previously regarded as actinomycosis, while the last case (Case 7) presented a deep ulceration on the dorsum of the hand, the size of a watch.

Data for diagnosis. — The diagnosis of the tubercular character of the affections appears to have rested on the clinical appearance, for no mention is made of microscopical examination of the tissue. The clinical diagnosis of lupus, however, appears to have been confirmed in one case (Case 2) by a violent inflammatory local reaction after injections of Koch's old tuberculin.

Previous treatment. — Six of the seven patients had been treated with various operative procedures before they came under observation.

Duration before treatment by inoculations. — The previous duration of symptoms is not stated in two, but ranged from one to seventeen years in the remaining five.

Duration of inoculation treatment. — Treatment by inoculations was maintained for from five to twenty-four months in six. In one case (Case 3), neither the previous duration nor the period of treatment appears in the record.

Weight before and after treatment. — The weight before inoculation treatment was begun is not stated in any of the cases, but is given as 141½ lbs. in one (Case 2), after about one year of inoculations.

Number of inoculations. — The number of inoculations is not recorded.

Dosage.— In only one history (Case 6) is there reference to the dosage, which in this patient is said to have given the best results at 1-800 mgm.

Opsonic index. — The opsonic index is mentioned in four patients (cases 1, 5, 6 and 7). In these it is stated to have stood at 0.4, 0.17, 0.67 and 0.85 respectively. Its figure after treatment is stated in one (Case 5) as 1.8 after inoculations for six months.

Results of treatment. — The results of treatment may be summarized as follows: Three patients (cases 4, 6 and 7) appear to have become nearly or quite well; in two (cases 2 and 3) the progress appears to have been satisfactory, as indicated by the statement that there is no discharge from the sinuses and but a few superficial patches of lupus on the face, and in the second (Case 3) that the patient is " considerably amended." In the two remaining patients (cases 1 and 5) recovery was interrupted by a relapse, which under re-inoculation was making good progress at the date of writing.

TUBERCULAR INVASION OF THE LYMPHATIC GLANDS.

In Wright's experience, he has obtained uniform success by means of inoculations in patients with tubercular glands. He therefore considers it necessary only to detail the results in five such cases.

Site of the lesions. — In these five patients, there were enlarged glands, the location of which is given as the neck in four. In the remaining patient (Case 4) their site is not stated.

Data for diagnosis. — In one case (Case 1) the diagnosis was confirmed by an injection of Koch's old tuberculin.

Previous treatment. — In four of the five, operation had been unsuccessfully performed.

Duration before treatment by inoculations. — In one patient (Case 2), a married woman, the glandular enlargement had lasted since childhood. In the remaining cases the records do not show their duration.

Duration of inoculation treatment. — The patients were given treatment by inoculations over a period of from three to four months in four cases, the duration of treatment not being stated in one patient (Case 4).

Number of inoculations. — Over nine inoculations were given to one patient and six or seven to another. Not stated in three cases.

Dosage. — In the first patient (Case 1) the dose of T. R. tuberculin was gradually increased from 1-500 to 1-50 mgm. Statements on this point are lacking in the other histories.

Opsonic index. — The opsonic index is given as 0.7 in one case (Case 4), apparently before treatment was instituted, but no further statements are made regarding it either in this or the other histories.

Results of treatment. — Four of the five cases recovered completely, in the remaining case (Case 2) the glands were " much diminished in size and no longer gave rise to any disfigurement or discomfort."

TUBERCULAR DISEASE OF THE GENITO-URINARY SYSTEM.

The histories of five patients are given as an illustration of the treatment.

Site and extent of the lesions. — The first four patients appear to have had tubercular cystitis, associated in the first with swelling and tenderness of the prostate and the back of the bladder; in the second with the disease in one kidney which had previously been removed; in the third with a previous history of pleural effusion, and in the fourth with a large open ulcer of the bladder, large and tender kidneys, especially the left, and with suspicious signs at one apex. At entrance the fifth patient was found to have a typically tubercular right testicle and a small nodule in the left epididymis.

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[13] The doses refer to the weight of the tubercle powder employed.

Data for diagnosis. — Tubercle bacilli were demonstrated in the urine of all.

Duration before treatment by inoculations. — The duration of symptoms before the patients came under observation is not stated in two cases, but varied from nine months to two years in the remaining three.

Duration of inoculation treatment. — The duration of treatment by inoculations varied from three to about fourteen months.

Weight before and after treatment. — The weight before treatment is stated in only one patient, in whom it was 91 lbs. and in this case a gain to 119 lbs. is recorded in about five months. The last patient gained 14 lbs. after leaving the hospital — during a period of about three months.

Dosage. — In the first case, the amount of tuberculin given at each inoculation, which was repeated every ten days, varied from 1-50 to 1-800 mgm. In the second case, inoculations with 1-400 mgm. were apparently used. In the third patient, the original dosage of 1-800 mgm. was later reduced to 1-2400 mgm. with satisfactory results.

Opsonic index. — The opsonic index before beginning the inoculations is given in the first three patients, as follows: In the first, 0.62; in the second, 0.75 and 0.35 in two trials; in the third, 0.85, 0.90 and 0.93 in three trials. Its figure after treatment is not stated in the first patient, but had become 1.7 in the second and 1.60 in the third.

Results of treatment.— In two patients, tubercle bacilli disappeared from the urine under treatment to reappear during a relapse in one. An improvement in the symptoms is recorded in all. The frequency of micturition in one patient was reduced from twenty-five times to only five times at night, in another from half hourly intervals to only four times at night.

It is to be desired that other and larger series of carefully tabulated cases may soon be published in confirmation of Wright's stimulating theory, with its alluring hopes for the solution of many medical problems.

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New Hospital for Philadelphia. — Mayor Weaver of Philadelphia has planned to purchase ground for the erection of a hospital for the city's indigent insane patients, and an ordinance will be presented to the finance committee appropriating $261,000 for the purchase of 870 acres of ground in Byberry, in the Thirty-fifth Ward.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-first Annual Meeting, Held at Hot Springs, Va., May 22, 23 and 24, 1906.

(Concluded from No. 19, p. 552.)

(c) ADVANTAGES OF BIMANUAL DILATATION OF THE PREGNANT AND PARTURIENT UTERUS.

Dr. J. Clifton Edgar, New York, said that no method of manual dilatation could ever entirely supplant instrumental dilatation and incision. The uterine and vaginal tampon, graduated hard dilators, branched rectal dilators, hydrostatic dilators, superficial and deep incisions, and vaginal Cesarean section were all applicable in appropriate cases. Dilatation by hydrostatic bags, the fingers of one or both hands, and branched rectal dilators, was feasible in most instances, and was to be preferred to methods by incision. Incision of the uterus for purposes of dilatation was rarely indicated. The best method of cervical dilatation was the one which most closely imitated nature's method of dilatation; hence the advantages of hydrostatic and manual dilatation. He referred to the special advantages of bimanual cervical dilatation.

In his sixteen years' experience in five maternity hospitals, he had yet to meet an interne who, having tried the two methods of cervical dilatation, namely, with one and with two hands, who did not finally adopt the method requiring the use of the fingers of both hands, and for the following reasons: "(1) The bimanual method is a closer imitation of the natural process than any other method of manual dilatation, being in this respect analogous to the bag of membranes or the hydrostatic bag, becuse the force used for dilating the cervical ring is directed from above downward. (2) Far greater force can be brought to bear upon the cervical ring, if need be, by the bimanual method than by any other, because the fingers of both hands are brought into play, and the stronger flexor muscles of the fingers and hand are the ones made use of. (3) There is no danger of prematurely rupturing the membranes, as there is when the fingers of one hand are passed through the cervix. (4) There is no interference with the original presentation or position, since the finger ends closely hug the lateral uterine wall; this cannot be said of any other manual method of dilatation, nor even by hydrostatic bags. (5) The bimanual method is far less fatiguing than any other method, because the strain is distributed in both hands, and the sense of touch of the operator's fingers is unimpaired as there is no constriction of the hands as there is when one hand is used."

(d) DILATATION VERSUS INCISION OF THE GRAVID UTERUS.

Dr. Egbert H. Grandin, New York, in a paper with this title, said the subject must be considered from the standpoint of elective operation, and from the view point of emergency operation. Incision should never be resorted to when the complication calling for intervention justified delay. Thus induction of labor in a case of pelvic contraction, interference in many cases of impending toxemia, as also in most instances of placenta previa, called for dilatation. On the other hand, the acute toxemias, the urgent instances of placenta previa, called for incision. The operative methods to be considered were abdominal and vaginal incision, and manual and instrumental dilatation. Broadly stated, in pelvic contraction, whenever it was doubtful that dilatation or vaginal incision would permit of delivery, abdominal incision was called for. In the acute toxemias, where the time element entered as a factor, and in rare acute cases of placenta previa, vaginal incision was justifiable, else dilatation should be the rule after a prescribed technique. Such devices as the Bossi dilator should receive the unqualified condemnation of American obstetricians. They were needless where the educated hand existed; they were dangerous under any condition. In the event of incision being indicated, the vaginal Cesarean section was to be commended as preferable to the Dührssen incisions. The indication for either was extremely limited.

(c) VAGINAL CESAREAN SECTION.

Professor Dührssen, Berlin, Germany, summed up the indications for this operation as follows: "Vaginal Cesarean section is indicated when in the case of an imperfectly dilated cervix, which will not permit of dilatation by gentler means, the life of the mother or the child is brought into danger. Also the presence of an operator experienced in vaginal operation is required. Imperfect dilatation of the cervix might be caused by pathological changes in the neighborhood of the lower uterine segment, or danger to the mother and child might arise when the pains had as yet caused insufficient opening of the os. In the first, the case was that of an absolute, while in the second, it was that of a relative, obstruction to delivery. The first must be removed because it would lead to danger for the mother and child. In the second, the danger was already present, and required the immediate emptying of the uterus."

Among the special indications he mentioned that of eclampsia. He first established the principle that on account of the independent nature of eclampsia, it was best, as soon as the diagnosis was made, to empty the uterus by narcosis. Investigations of the last few years, which recognized eclampsia as an intoxication produced by pregnancy, had shown that he was right.

He had collected 376 cases of vaginal Cesarean sections, with 48 deaths, a mortality of 12.7%. This high mortality was not due to the dangers of the operation, but to the serious diseases for which operation was undertaken. This proved that the greater operation, namely, the radical vaginal Cesarean section, had a lower mortality than the conservative vaginal Cesarean section. Of 53 cases of extirpation of the uterus after vaginal Cesarean section, this combination of operations, only 5 died. This further proved the low mortality of the conservative vaginal Cesarean section, in clinics where immediate deliveries in cases of eclampsia had been effected according to the author's teachings and directions. Veit had only one death in 33 cases; Bumm only one death in his last 40 cases. He mentioned two deaths in 12 cases of vaginal Cesarean section. One was a woman moribund with heart disease, who died immediately after the uterus was emptied. The other was a case of eclampsia with pulmonary tuberculosis as a complication. She was first cured of the eclampsia, the wound healed perfectly; the uterus was completely involuted, but she died in four weeks of tubercular pneumonia.

ON THE POSSIBILITY OF THE DEVELOPMENT OF CANCER IN THE CERVICAL STUMP FOLLOWING SUPRAVAGINAL HYSTERECTOMY.

Dr. Andrew F. Currier, New York, said that the cases in which this complication might arise were usually those in which the uterus had been removed for myoma. That myoma frequently co-existed with cancer was a matter of common observation. Piquand had collected 45 such cases, in 24 of which it was thought that the fibromuscular elements had been transformed into epithelial cells, although in some of them there were pre-existing cells with proliferated and developed malignancy. These cells were supposed to have been derived either from the embryonic remains of the Wolffian or Muellerian canal, or were simply epithelial ingrowths into the fibrous tissue. The author was satisfied from his own experience that the co-existence of cancer and myoma was much more frequent than Piquand would seem to think. Noble, in an analysis of 1,188 cases of fibroid tumor operated upon by various surgeons, found 29 in which cancer of the corpus uteri was a complication; 12 in which there was cancer of the cervix, and 1 in which there was cancerous infiltration of a fibroid tumor arising from adeno-carcinoma of the corpus uteri by metaplasia. The author had not yet seen any conclusive evidence that myoma was transformed into carcinoma, and histologically one would not expect such a sequence.

Of the cases appearing in the literature, the author added one which recently came under observation. The patient was fifty-one years of age, and was sent to him Oct. 5, 1905. The corpus uteri, ovaries and tubes had been removed for uterine myomata March 23, 1901, by the late Dr. Fowler, of Brooklyn. Patient recovered promptly from the operation, but subsequently developed carcinoma of the left breast, and this was removed by the same surgeon eighteen months after the first operation. Recovery from the second operation was also prompt, though she complained of pain and numbness in her side and arm ever since. Dr. Currier dissected out the cervix from the vagina Nov. 10, 1905, which was found well covered with thickened, firmly adherent peritoneum. The mucous membrane of the os uteri showed typical epithelioma which had not proliferated to the surrounding structures, nor had the tissues broken down. The patient recovered promptly.

The suggestions which occurred to him in connection with the consideration of this subject were the following: "(1) The necessity of more careful clinical and pathological records, both public and private, in all the cases in which supra-vaginal hysterectomy was performed. This would probably result in the discovery of cancer of the endometrium in cases in which it was not suspected, and would probably bring to light additional facts in regard to the history of the evolution of cancer. (2) The periodical examination of those who have undergone the operation in question at not longer than six months' intervals. This was especially desirable for those whose tissues were in a bad condition of nutrition or who suffered from an hereditary taint. (3) Complete removal of the uterus offered greater security from cancer than retention of the cervix. If the patient's history revealed any conditions which suggested the possibility, near or remote, of future degeneration of tissues, complete extirpation should be the invariable rule."

THE SEARCH AFTER TRUTH.

This was the title of the president's address, which was delivered by **Dr. Richard B. Maury**, Memphis. He referred feelingly to the deaths of Dr. A. Palmer Dudley, New York; Dr. James R. Chadwick, Boston; Dr. Arthur W. Johnstone, Cincinnati, and Dr. R. Stansbury Sutton, Pittsburg, which occurred during the year.

The president then made some remarks on the subject of uterine displacements, and referred to a discussion on anteflexion before the society in 1888, which was participated in by T. Gaillard Thomas, Graily Hewitt, Sir William Priestley and others, the conclusion having been reached by those men at that time that the man who would not use pessaries in the treatment of anteflexion was unfit to practise gynecology. The intra-uterine stem had passed out of the history of gynecology, perhaps forever, and would never again come into favor. The knowledge of pelvic inflammation was so fully disseminated that every practitioner realized the peril to a woman from its use.

When one considered the various operative procedures which had been devised for the cure of backward displacements, and noted that nearly all of them involved the shortening of one set of ligaments or another, or else the suspension of the uterus from above, he must conclude that the present practice was generally accepted by the profession.

President Maury discussed at considerable length how the uterus was sustained almost entirely by its ligaments, but said that some of the teachings regarding this matter were erroneous, in that the proper supports of the uterus were not the ligaments, but the various structures which constituted the two segments of the pelvic floor, as was demonstrated by Hart and Barbour.

He discussed the various methods of the repair of injuries of the pelvic floor. In conclusion, he thanked the members for the distinguished honor conferred upon him in electing him president.

RESULTS OF VAGINAL SECTION AND DRAINAGE IN EARLY CASES OF ECTOPIC GESTATION.

Dr. Willis E. Ford, Utica, N. Y., reported twelve cases, which were all seen before rupture had occurred, and some of them as early as in the eighth week. In all the cases the incision was made cautiously into the sac, the finger being used to open into it, and the contents examined before the finger was wholly withdrawn, so as not to lose the landmark. In no case was all the blood emptied at the time of the incision, but gauze was carefully passed into the opening and very firmly packed to prevent hemorrhage, and allowed to remain for a week before removal. In this way hemorrhage was avoided, and the operation was almost trivial in its consequences.

The fact that the cases operated on by him early left almost no trace of anything wrong in the pelvis afterwards, and that the operation was so safe and so certain in its results, had impressed him that the society should urge early diagnosis and early operation of all cases of extra-uterine pregnancy. If the teaching in the medical schools could be so modified as to impress upon medical students a more careful consideration of the subjective symptoms until skill enough had been acquired to enable the verification of the diagnosis to be made with certainty, he was sure that these cases of ectopic gestation would be seen early enough to be operated, and thus prevent rupture and hemorrhage in a large number of instances.

REVIEW OF THE SURGERY OF THE FEMALE PELVIC ORGANS.

Dr. Seth C. Gordon, Portland, Me., presented the following conclusions: "(1) That the Battey operation is one that did an immense amount of good in the practice of men of experience and skill in operating. The results in many cases were often delayed for obvious reasons. Undoubtedly much more harm than good was done because of inexperience in pathology and operative skill. (2) So-called conservative gynecology in too many instances is but a conservatism of diseased organs, in whole or in part, and not conservative of the health of the patient. (3) The sentiment is already changing from this extreme conservatism to a more careful consideration of the future condition of the patient, as instanced in a more general belief in hysterectomy for fibroids of the uterus instead of myomectomy. (4) In resections of the adnexæ regard should be paid to the history of the cause of infection rather than to the macroscopic condition, as the virulent germs produce changes that require total removal, together with the uterus, as the only safety to the patient. (5) In malignant disease of the uterus efforts should be made to discover it early, when an hysterectomy might be done to advantage. Advanced cancer may be treated tentatively by curettement and actual cautery. The extremely extensive operations of attempting removal of a wide margin around the uterus have produced unsatisfactory results, with a very high mortality and early recurrence. (6) That surgical measures for displacements are still *sub judice*, so far as any agreement as to any special method is concerned."

CONSERVATIVE OPERATIONS ON THE OVARIES.

Dr. J. Montgomery Baldy, Philadelphia, said, among other things, that senile sentiment had no place in deciding what should be done in the presence of a diseased ovary. Nor was the anatomical limit of disease and health in this organ the only thing to consider. It was difficult to tell what was and what was not disease in the ovary even microscopically, and in a very large number of instances it was necessary to decide the question by the symptoms and not by the make-up of the organ. Conservative operations on the ovaries were so commonly mixed up with the removal of adhesions, replacement of the uterus and other accompanying procedures, that it was utterly impossible to distinguish between results. Immediate results and end results were different. End results were not always reliable. It was only by the survey of the whole case, general as well as local, together with a profound practical knowledge of human nature, as well as a sublime respect for the vagaries of women's nerves, that one could appreciate the full truth.

He cited an instance illustrating the moral effect of a surgical operation.

Again, end results were important in that large numbers of women were operated upon, the lesions corrected, and yet no good or only temporary results obtained. Cases were cited in point.

Putting the facts squarely before the ordinary woman, giving her full, unprejudiced freedom of decision, in 24 cases out of 25 he believed she would decide for a complete operation. Sentiment existed largely in the doctor, not in the woman, and the few who were influenced by it had been educated up to that point by the class of doctor who objected to the removal of the ovaries because he found an analysis of a group of cases that "78% subsequently suffered a notable loss of memory; 60% were troubled with flashes of heat and vertigo; 50% became irritable, less patient, and some so changed as to give way to violent and irresponsible fits of temper; 42% suffered more or less from mental depression; 35% increased in weight, and some became abnormally fat," his general intelligence being such as not to appreciate that the picture he drew as one of bad results following faulty judgment was merely the symptoms of the natural and inevitable menopause and which would in a short time leave the woman as surely as they came to her.

FACTS AND FIGURES OF END RESULTS IN ONE HUNDRED CASES OF CONSERVATIVE OPERATIONS ON THE UTERINE APPENDAGES.

Dr. Walter P. Manton, Detroit, Mich., said that in order to ascertain his own experience along conservative lines, he had taken 100 cases from his notebooks. Of the 100 women, there were 30 single, 64 married, and 6 not noted. The following operations were done: On the ovaries, resection of both ovaries in

17 cases; right ovary in 26 cases; left ovary in 13 cases. Puncture of both ovaries in 22 cases; right ovary in 8 cases; left ovary in 14 cases. In 19 women the ovary of one side was found to be so largely involved as to require removal; the right in 6 instances; the left in 13. Resection was done in both tubes in 13 cases, right tube in 4 cases, and left tube in 9 cases.

It was found necessary to remove one tube in 10 of the patients, the right in 4, and the left in 6 cases. The opposite side was left untouched or resected.

In the 100 women the immediate results were entirely satisfactory, that is, all the patients recovered from operation and were relieved from the sufferings of which they formerly complained. The mortality was therefore *nil*, and the results temporarily perfect. The majority of these patients remained under observation for at least three months. Following this quarter year, 61 are known to be well at the present time, 31 had been lost sight of, 5 were doubtful, complaining of pelvic pain referable to the resected ovary, but in which no change could be detected on examination, and 3 had required a second operation for the removal of the conserved organ which had undergone in each instance further cystic degeneration. Of the 64 married women, 55, or 85%, and of the 30 single women, 23, or 75%, were well a year following operation. Of 64 patients of whom knowledge was had a year or more following operation, 41 were married. Of this number, 6, 14%, subsequently became pregnant; 4 of these were delivered at term; one aborted at the third month, and one was still pregnant.

From the foregoing he maintained that his own statistics and those of others showed that the conservative surgery of the ovaries and tubes, having passed the experimental stage, had established itself as a legitimate and successful operation in all the conditions to which it might be properly applied, and that it should be the operation of choice in all instances during the child-bearing age, where the diseased state of the organs admitted of its employment.

THE TECHNIQUE OF THE REPAIR OF LARGE VESICAL FISTULÆ.

Dr. William S. Stone, New York, read a paper on this subject in which he summarized as follows: "(1) The basic principle in the repair of the large fistulæ is an extensive separation of the bladder walls, especially of the upper part in front of the cervix, by means of which it is readily sutured to the more fixed lower portion. (2) The uterus, which has been made movable by the free dissection entailed in the separation of the bladder, or by an additional incision posteriorly in some cases, is a most valuable supplement in filling up the opening in the vaginal wall. (3) With these principles applied, it is a matter of little importance what kind of suture material is used, or what relation the vesical and vaginal suture lines have to each other."

THE TREATMENT OF VESICO-VAGINAL FISTULÆ.

Dr. I. S. Stone, Washington, D. C., said experience had shown that wounds of the bladder made during the performance of surgical operations healed readily after careful application of sutures. This occurred after injuries at the base, as in vaginal hysterectomies, as well as in those at or near the fundus, which were comparatively frequent in operations upon the uterus for the removal of tumors. Two principal causes contributed to this result. One was the healthy condition of the bladder itself, and another was the ease with which the muscular wall of the organ could be approximated when absolutely free from the uterus or vaginal wall. It had been his experience that the very large fistulæ afforded such free drainage as to secure perfectly healthy mucous surfaces of both bladder and vagina, the only exception being in one bedridden patient who had been indifferently cared for and whose fistula was covered with incrustations. It would be found in many instances that large fistulæ had persisted because they were associated with injuries of the vagina of a serious character which produced extensive cicatricial contraction. Such an injury was more than a mere incision or laceration of the vaginal wall, and included the connective tissue also, which became a permanent retractor to the margins of the fistula and prevented its closure until surgical relief was afforded.

He had found it unnecessary to treat these cases by the tedious method of Bozeman, and now felt confident that any fistula could be closed satisfactorily by first liberating the bladder from any adherent surface or organ which prevented its closure, and then by uniting the margins of the fistula with catgut, and afterwards, at the same sitting, by utilizing the vaginal wall of the uterus as might be needed to support the line of sutures in the bladder wall. This was opposed to the contention of those who favored suture of the supporting base only — the vaginal wall, for example. Finally, one might draw the vaginal walls forward after suitable dissection, or he might utilize the uterus as suggested by Kelly, which was done by drawing forward the cervix and making it secure with sutures to the anterior margins of the fistula, or by using the Freund method of turning the fundus downward and then forward into the opening. This last method seemed to him quite objectionable, as it necessitated a new opening into the cavity of the uterus to provide for the escape of the menstrual flow. He had overcome the disadvantages of this method of Kelly's and had obtained abundant mobility by drawing down the uterus, cutting away the anterior vaginal wall, and dividing the broad ligaments so as to cause less traction upon the sutures. This had also been accomplished by separating the bladder from the uterus and broad ligaments through an abdominal incision, and by a division of the broad ligaments at their upper border, where they were attached to the uterus. This method had been used for the relief of fistula of any description, and the profession owed acknowledgment to Mackenrodt for priority and for clearly establishing its usefulness in almost any fistula of whatever shape, position or size. In the treatment of small fistulæ, the vagina was divided longitudinally, the bladder separated from the vaginal wall, then united, and the vaginal wall closed, each independently. He had found its best and most useful application in the closure of large fistulæ, and where failure had resulted after previous attempts at cure. Illustrative cases were cited in which excellent results were obtained.

Dr. Howard A. Kelly, Baltimore, read a paper in which he discussed the abdominal extra-peritoneal and abdominal trans-peritoneal operations. He pointed out the best means of exposing a difficult vaginal fistula; also how to preserve the uterus, and when to sacrifice it, if necessary. The methods of approximation in one layer or in two were also expatiated upon.

SHORTENING OF THE ROUND LIGAMENTS WITHIN THE INGUINAL CANALS THROUGH A SINGLE SUPRAPUBIC TRANSVERSE OR MEDIAN LONGITUDINAL INCISION.

Dr. Reuben Peterson, Ann Arbor, Mich., said that in his hands the Alexander operation for shortening the round ligaments had proved the most satisfactory of all the operations for backward displacement of the uterus. However, the operation had two great disadvantages. It was limited to freely movable uteri and it necessitated two incisions. In the operation now employed by the writer the work (1) was performed through a single incision, preferably through a suprapubic, transverse incision not more than three inches in length. (2) The external rings were easily exposed by such an incision. (3) They could be readily, although not so easily, exposed by the ordinary median longitudinal incision. (4) The operation was applicable to adherent as well as movable uteri, since the abdomen was opened in every instance. (5) By following out a certain technique the round ligaments could be definitely and quickly located in every instance.

Dr. George M. Edebohls, New York, reported a third case of renal decapsulation for puerperal eclampsia.

HYPERNEPHROMA RENIS.

Dr. J. Wesley Bovee, Washington, D. C., reported two such cases, and said that hypernephroma was the most common form of kidney tumor. Many kidney tumors formerly thought to spring from kidney structure were now known to originate in islands of suprarenal tissue included in the kidney. He spoke of the so-called renal nests. Such deposits of renal tissue were common along the genito-urinary tract, were usually benign in character, but might become malignant. The treatment consisted of removal when they gave symptoms.

Dr. George H. Noble, Atlanta, Ga., followed with a paper in which he discussed intra-mural abscess in the puerperal uterus.

OFFICERS.

President, Dr. Clement Cleveland, New York; First vice-president, Dr. J. Clifton Edgar, New York; second vice-president, Dr. Willis E. Ford, Utica, N. Y.; secretary, Dr. J. Riddle Goffe, New York (re-elected); treasurer, Dr. J. Montgomery Baldy, Philadelphia (re-elected). Member of the council, Dr. Richard D. Maury, Memphis, Tenn.

The society will hold its next annual meeting in Washington, D. C., 1907, in connection with the Congress of Physicians and Surgeons.

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Book Reviews.

A Handbook of Climatic Treatment, Including Balneology. By William R. Huggard, M.A., M.D., F.R.C.P., London; H. B. M. Consul at Davos, Switzerland. London: Macmillan & Co. 1906.

Dr. Huggard has written a most admirable book, perhaps the most generally satisfactory volume on its subject which has yet been published. After a brief statement of the elementary meteorologic knowledge necessary to such a work, he discusses our present knowledge of the physiology of climate in a fairly satisfactory manner, though exception might be made to some of his statistical arguments, particularly those of the effects of altitude on respiratory disease. In the section on the influences of atmospheric pressure on the blood and circulation, no mention is made of Gardiner and Hoagland's work on human blood pressure, nor anywhere does the author indicate an acquaintance with the very great material in Herarra and Lope's work on "*La Vie sur les Hauts Plateaux.*" Nevertheless, the discussion of this section is clear and practical and an excellent summary of our present understanding of these matters.

The most interesting portion of the book is the section on types of climate. In this chapter, Dr. Huggard, departing from the older geographical arrangements, has set forth a classification upon a physiological basis, that of "the demand made by the climate for the production of heat." This corresponds with the demand for tissue change, and is an arrangement which shows great and careful study by Dr. Huggard of the fundamental workings of climate and of the clinical needs and reaction of varying patients. It is quite new, and from the medical point of view the most rational grouping set forth in any volume for therapeutic reference. Dr. Huggard makes five groups, *viz.*, climates where the heat demand is excessively small; small; medium; large; excessive; and divides each group into two classes according as this demand is regular or irregular. Short as this chapter is, it is as valuable a contribution to a rational selection of climates for therapeutic uses as has been published in a long time. The descriptions of various resorts classified under these headings seem generally good and contain the usual tabular information. Some of the meteorologic data are not of the latest date. Those for Colorado, for instance, being from the *first* edition of Wood's Handbook, while the second edition of five years ago has much fuller data. The last section on therapeutics of various diseases discusses incompletely much of a non-climatic nature. The volume as a whole is a most credible and useful contribution to its subject and will be read with profit by all who have any interest in the rational selection of the climatic surroundings for their patients.

Lectures on Tropical Diseases: Being the Lane Lectures for 1905. Delivered at Cooper Medical College, San Francisco, August, 1905, by Sir Patrick Manson, K.C.M.G., M.D., LL.D., F.R.C.P., F.R.S.; Hon. D.Sc. (Oxon.); Medical Adviser to the Colonial Office; Lecturer London School of Tropical Medicine; St. George's Hospital Medical School, etc. Chicago: W. T. Keener & Co. 1905.

In these lectures Dr. Manson has presented in an interesting and semi-popular style an outline of our knowledge of tropical diseases — dealing in turn with ankylostomiasis, dacontiasis, endemic hemoptysis, bilharziosis, filariasis, malaria, trypanosomiasis and sleeping sickness, and febrile tropical splenomegaly. There are also chapters on the diagnosis and treatment of tropical fevers. The volume makes no pretense to be a complete treatise on this rapidly enlarging field of knowledge, but gives a good outline of that portion of modern medical work for one who, having no likelihood of giving personal care to such cases, wishes to obtain a general idea of what is now known of tropical disease. For other than such general and popular interest the lectures are quite inadequate.

THE BOSTON

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MILK INSPECTION.

The milk situation is one of perennial interest and we therefore turn with a certain degree of curiosity to the recently published report of Mr. J. O. Jordan, milk inspector of Boston. The whole question of a municipal milk supply is one of great complication, as we have on previous occasions pointed out. The legitimate demand of the public for an unadulterated and fresh milk at reasonable cost must be set over against the hardship to the producers in supplying milk at the rates demanded with an adequate margin of profit. The problem is, however, being solved apparently in a satisfactory manner. Nearly all of the milk sold in Boston during the past year was of standard quality, and the milk law was less frequently violated than during the previous year. During periods of milk shortage it becomes necessary to secure it from greater distances, with the result that proper examination often cannot be made, and the milk is transferred directly from the cars to the customers. The habit on the part of shopkeepers of skimming milk offered for sale has been under consideration and is likely to be obviated in the future. The statistics show that 354,448 quarts of milk are brought to this city daily, and that upwards of 87% of this amount is conveyed by rail. A considerable amount of milk is also sold from wagons, and the uncleanliness of these vehicles has on several occasions been a matter of serious consideration. Warnings have, however, been followed by a correction of this abuse. The same difficulty has been found in certain stores where milk is sold in the poor parts of the city. At times it has been necessary to revoke the right to sell milk, at least temporarily. Bacteriological examination of milk has been continued, with the result that the milk is cleaner and that contractors have been interested in extending the scope of this work. The result of these examinations has led to the issuance of many warnings, usually with subsequent improvement of the quality of the milk.

In winter difficulty has arisen from the endeavor of the farmers to prevent the freezing of milk by keeping it near a source of artificial heat. The changeable temperatures and the process of incubation thereby instituted has led to the multiplication of bacteria in certain instances greater than from the same dairy during the summer. This should be a matter easily remedied. That infection in milk is frequent is shown from the fact that in a large number of specimens examined, upwards of 105 showed the presence of pus and streptococci, or streptococci alone. Such contamination may and no doubt will be decreased in the future.

The question as to how the producer is to know whether his milk is contaminated is frequently asked. Naturally, producers cannot be expert bacteriologists, but they can at least be strictly observant of the health of their stock and refrain from sending to market milk taken from animals which are in any way questionable. It is also necessary to insist upon the importance of low temperature in lessening bacterial growth. Cold milk should be demanded, and ice should be used in winter as well as in summer. Milk should leave the farm both cold and clean. If this be conscientiously done, the main evils would be avoided, although undoubtedly other factors must also be taken into account. In general, the situation is full of promise. The contractors are realizing the importance of a better milk supply, and are doing what they can to arouse producers to practise the greatest possible care in dispensing their product. The general inspection of dairy farms and an awakened public opinion are also likely to go far toward an amelioration of the conditions.

A HISTORY OF THE BOSTON CITY HOSPITAL.

The Boston City Hospital was first opened for patients in 1864. In 1904 it was resolved to prepare the present volume, which has just been issued, as a record of the first forty years of the growth and activities of the institution. Only two of the original members of the hospital staff, Drs. David W. Cheever and John G. Blake, now remain, and it was thought wiser not to wait fifty years, when some of the present editors might not be living and many interesting and instructive details might thus be lost.

During the first forty years of the hospital's existence the number of beds increased more than fourfold and the number of the staff in the same ratio, and the editors remind us that in those forty years surgery and medicine have seen the discovery and the established use of the three marvels, — asepties, the toxins and the Rœntgen ray.

The history is an octavo volume of 417 pages, with numerous illustrations and maps and having somewhat the appearance of a city document. There are twenty-nine distinct contributions, covering quite thoroughly a great variety of subjects pertaining to the life and growth of the institution from its inception through the forty years until 1904.

An admirable opening chapter by Dr. Rowe, the present superintendent, giving an historical description of the buildings and grounds of the hospital, reminds us that "one index of the intelligence and public spirit of a community is the way in which it provides for the needs of the sick and the poor. Boston, in establishing and maintaining a municipal hospital, now grown to large proportions, has given proof of a humanitarian spirit and a civic intelligence second to no city in the United States."

Much profit for the future guidance of those municipalities or individuals about to embark on similar undertakings may be derived from a study of this and other chapters of this volume, and much profit for the future guidance of trustees and professional staff of this same institution. The original choice of a location, though perhaps the best that could be made at the time, was not a wise one; but changes in population and in the city's boundaries have done away with one of the chief objections then advanced, namely, that the location was not central.

Again, some cheap wards of one story, built with a view to replacement at the end of ten years, have, after twenty-five years' service, proved among the most efficient and satisfactory at the hospital.

Such contributions as are found between the covers of this volume have a very considerable administrative and professional value, apart from the interest they may excite in a still wider and perhaps less responsible circle of readers. The editors have done an acceptable work and deserve the thanks of their colleagues.

We heartily hope that their successors, forty years hence, may find this hospital in as flourishing a condition as it is in to-day, and as much of good to record. The Boston City Hospital is to-day everywhere regarded as a model municipal institution. It can only preserve this enviable reputation by the freedom from political interference and by the cordial co-operation between trustees and the staff which has obtained in the past.

THE ITALIAN IMMIGRANT.

Immigration offers many problems, as we have recently had occasion to observe. An interesting side light is thrown on the subject through a recent communication appearing in the *Lancet*. Dr. Antonio Stella, who occupies the position of vice-president of the Society for the Protection of Italian Immigrants in New York, recently spoke at the Congress for the Prevention of Tuberculosis at Milan, on the prevalence of tuberculosis among young Italian immigrants to this country. These immigrants are usually young and for the most part come from rural regions in their native country. When they reach this country, they are forthwith crowded into unsanitary quarters in our large cities, and partly through necessity and partly through choice have long hours of work in equally unsanitary places, with the result that a very large proportion become weak and anemic and ultimately develop tuberculosis. Another element in the situation is poor and often insufficient food. A contrast to this situation is shown by the health and vigor of the minority who seek outdoor employment and thereby preserve the rugged health which was theirs before leaving their native country. Children born of parents who are tuberculous and generally debilitated naturally propagate a deteriorated physique, so that the ultimate outlook for the Italian population in our large cities is not hopeful unless the matter be definitely and vigorously taken in hand. Dr. Stella has had wide experience in dealing with the Italian population, and his words and warnings should be most seriously received.

MEDICAL NOTES.

Festkommers in Honor of Professors Waldeyer and von Bergmann. — It is announced that a *Festkommers* in celebration of the seventieth birthdays of Drs. Wilhelm Waldeyer, professor of anatomy, and Dr. Ernst von Bergmann, professor of surgery in the University of Berlin, will be held Dec. 13.

Death of the Leper Outcast. — The death is reported of the Syrian leper who during the past few months has been driven from place to place because of his disease. He finally died of an affection of the heart in a shanty near Clarksburg, W. Va. The story of his treatment during the months preceding his death does not reflect great credit upon the intelligence and humanitarian instincts of the people at large, as we have previously had occasion to point out.

Dr. Henry Tweedy, of Dublin. — Dr. Henry Tweedy, of Dublin, the father of the profession in Ireland, has died at the age of ninety-six. He retained his vigor of body and mind up to this ripe age. But a few days before death he had a fall and sustained a fracture of the neck of the femur. He leaves his son, Dr. H. C. Tweedy, physician of Stevens' Hospital; Dr. Hastings Tweedy, the Master of the Rotunda, is a nephew; Sir W. Longly is his son-in-law. Dr. Tweedy took the license of the College of Physicians in 1836 and the M.D., Glasgow, 1838. He always took great interest in all charitable and religious works, and for many years these have been his chief objects. Our venerable colleague carries with him the respect and affection of those who knew him. — *London Letter, N. Y. Record.*

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Nov. 14, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 57, scarlatina 20, typhoid fever 24, measles 5, tuberculosis 45, smallpox 0.

The death-rate of the reported deaths for the week ending Nov. 14, 1906, was 19.48.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Nov. 10, 1906, was 219, against 188 the corresponding week of last year, showing an increase of 31 deaths and making the death-rate for the week 18.19. Of this number 118 were males and 101 were females; 217 were white and 2 colored; 130 were born in the United States, 86 in foreign countries and 3 unknown; 43 were of American parentage, 155 of foreign parentage and 21 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 55 cases and 5 deaths; scarlatina, 24 cases and 1 death; typhoid fever, 25 cases and 1 death; measles, 3 cases and 1 death; tuberculosis, 40 cases and 26 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 23, whooping cough 0, heart disease 33, bronchitis 9 and marasmus 2. There were 13 deaths from violent causes. The number of children who died under one year was 39; the number under five years 50. The number of persons who died over sixty years of age was 64. The deaths in public institutions were 70.

There was one case and one death reported from cerebrospinal meningitis during the week.

Appointment of Dr. A. V. Goss, as Superintendent of Taunton Insane Hospital. — Dr. A. V. Goss, the first assistant physician of the Taunton Insane Hospital, has been appointed superintendent of that institution in place of Dr. J. P. Brown, resigned.

Typhoid Fever in Brookline. — The records of the Brookline Board of Health show, with reference to typhoid fever in the town, that "in September there were 7 cases of typhoid fever reported, and no deaths; in October, 11 cases and 1 death and in November to the 8th inclusive, 2 cases and 1 death. The total number of typhoid fever cases for the year, to Nov. 1, is 20, as compared with 12 cases reported up to Nov. 1 of last year. A large number of these cases of typhoid fever are known to have been contracted away from home.

"Brookline, like other towns in eastern Massachusetts, has had, this fall, somewhat more than its usual amount of scarlet fever and typhoid fever, but has had almost no diphtheria, and very few new cases of either scarlet or typhoid fever have appeared during the last ten days."

Stony Brook Pollutes Charles River Basin. — An investigation by the Massachusetts Board of Health shows that Stony Brook is discharging a large amount of Boston sewage into the Charles River basin. On account of the conditions existing the completion of the Charles River dam is threatened with delay. Abutters in the neighborhood of the discharge of Stony Brook have had this objectionable state of things forced upon their attention for some time, but the authorities of the city of Boston have seemed to regard it as no concern of theirs.

Charges of "graft" against the Sewer Department of the city of Boston are persistent and positive.

Resignation of Dr. J. P. Brown, as Superintendent of the Taunton Insane Hospital. — Dr. J. P. Brown has resigned the position of superintendent of the Taunton Insane Hospital after a continuous service in that capacity of twenty-nine years. He received his training for the work while assistant physician for twelve years at the New Hampshire Hospital for the Insane under the elder Bancroft, one of the most progressive and able superintendents of his day. Dr. Brown's ripe judgment, quick insight into the growing needs of the hospital insane, and the most approved means of developing an institution to meet them, as well as his native talent for quiet, effective organization and management, soon established his rank as a hospital administrator of the first order, which he has maintained to the close of an unusually long official career.

Avenue Pasteur.—It seems as if all might easily unite on "Avenue Pasteur" as the name of the proposed new approach to the Harvard Medical School.

NEW YORK.

Bequest to Somerville, N. J., Hospital.—Mr. S. S. Palmer, of Princeton, N. J., has donated the sum of $5,000 to the hospital at Somerville in that state. This gift is made in recognition of care his wife received after an automobile accident.

Accident to an Ambulance. — On Nov. 6, a trolley car in the Bronx collided with an ambulance of the Lebanon Hospital. The ambulance was completely wrecked, and its occupants thrown violently to the street. In it were two patients, a colored man and woman who had been wounded in a shooting affray. In consequence of the shock resulting from the accident the man died shortly after reaching the hospital, where he was taken in another ambulance. The ambulance surgeon, who was thrown a distance of fifteen feet, received severe contusions and remained unconscious for some time.

Resignation of a House Staff. — The six members of the house staff of the German Hospital in Williamsburg, Borough of Brooklyn, have resigned in consequence of the failure of the board of directors to dismiss the supervising nurse of the hospital for assuming to countermand certain orders given by the house physician for a patient. Although the act of insubordination appears to have been a specially flagrant one, the directors declined to punish the offender with anything more severe than a reprimand. The situation thus created was one that neither could nor should have been endured, and there can be no question that the internes were entirely justified in taking the course which they did.

Opening of New Jewish Hospital. The new Jewish Hospital for Deformities and Joint Diseases, on upper Madison Avenue, was formally opened on Nov. 4. A brown-stone dwelling, opposite Mount Morris Park, with three stories and basement, has been entirely remodelled and finely equipped for the purposes of the institution. In the basement are the offices and out-patient department; on the first floor, private examination rooms and a spacious x-ray room; on the second floor, the wards, and on the third, a large operating room, furnished in glass and white enamelled steel. The hospital is the outgrowth of a dispensary opened two years ago at 50th Street and Lexington Avenue by Dr. Henry W. Frauenthal, orthopedic surgeon to the Beth Israel Hospital.

Water Supply of Jersey City. — The Board of Health of Jersey City has requested the Health Department of the state to make an investigation of the water supply of the city, and as a matter of precaution has advised consumers to boil the water before using it. At a meeting of the board held Nov. 5, George C. Whipple, an expert sanitary engineer who has been employed for some time by the city, reported that a recent analysis showed that while the water was contaminated, there was no evidence of typhoid germs in it.

Bequests. — By the will of Mrs. Caroline Herriman Polhemus, of Brooklyn, who died the latter part of October, $500,000 is left to benevolent objects. The largest bequest is one of $250,000 to the endowment fund of the Polhemus Memorial Clinic at the Long Island College Hospital. In addition the income of $50,000 is to be devoted to the care of the building. Among the other bequests are $10,000 each to Dr. Trudeau's Cottage Sanitarium for Tuberculosis in the Adirondacks, to the Brooklyn Eye and Ear Hospital, and to the House of St. Giles the Cripple. The last-named is a home and hospital for destitute crippled children, and there is in connection with it a country branch at Garden City, Long Island. Mrs. Polhemus was the widow of Henry D. Polhemus, a well-known philanthropist, whose family owned the Polhemus farm, which was taken by the city of Brooklyn for a portion of Prospect Park. After his death, in 1895, she gave $400,000 to build and endow the Polhemus Memorial Clinic, and this was dedicated in 1898.

Mortality in October. — The weekly reports of the Health Department show that during the month of October the mortality in the city represented an annual death-rate of 16.52, as against 17.67 in September and 15.55 in October, 1905. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 19.75 in September to 23.2 in October; the weekly average from whooping-cough, from 8 to 10; from diphtheria and croup, from 15.75 to 23.2; from pulmonary tuberculosis, from 155.75 to 166.4; from acute bronchitis, from 13.5 to 18; from pneumonia, from 53 to 74.8; from broncho-penumonia, from 65.75 to 75.2; from cancer, from 56.25 to 57.8; from apoplexy, congestion and softening of the brain, from 45 to 52.8; from organic heart diseases, from 98.25 to 102.2; and from cirrhosis of the liver, from 22.25 to 25. Among the few diseases which showed a diminished mortality were the following: The weekly average of deaths from diarrheal diseases decreased from 251.5 to 125.6, and from diarrheals in children under five, from 239.75 to 117. The number of deaths reported from malarial diseases, influenza, scarlet fever, measles and Bright's disease was practically the same as in September. The corrected death-rate, excluding non-residents and infants under one week old, was 15.44.

Manhattan Eye, Ear and Throat Hospital. — The new building of the Manhattan Eye, Ear and Throat Hospital, on Sixty-fourth Street, between Second and Third avenues, was opened on Oct. 30 with a religious service, which took place in the Agnew Memorial Library, and a reception by the directors and surgeons, assisted by a number of ladies. The new hospital, which is seven stories high, has a frontage of 75 feet and a depth of 100 feet. Together with the ground, which covers four city lots, and with its equipment, the cost of the building was in the neighborhood of $700,000. It is built of brick, with white marble trimmings, and is fireproof. On the lower floors are the out-patient department and the main wards, and in the rear of the latter are sun balconies for convalescents. On the third floor is the Agnew Memorial Library, in memory of the late Dr. Cornelius Ray Agnew, the founder of the institution. On the fourth floor there are twenty-seven private rooms, for which there have been provided a special entrance and elevator, and on the top floor three operating rooms and laboratories for research work. The capacity of the new hospital is one hundred and fifty beds, or three times the number in the old building at Park Avenue and Forty-first Street. Among the principal gifts to it were $40,000 from E. R. Thomas; $50,000 for a throat and ear ward from Mrs. Samuel Thomas and her son and daughter; $50,000 for a children's ward from Mrs. Gustavus Heye, Mrs. George G. Heye and Mrs. J. B. Clemmens; and $25,000 for an ear clinic from Frank Tilford.

Current Literature.

The Journal of the American Medical Association.
Oct. 27, 1906.

1. Sinkler, W. *The Growth of Neurology.*
2. * Tomlinson, H. A. *The Motor Degenerative Sequence in Dementia.*
3. * Walton, G. L. *The Blood Pressure in Paresis.*
4. * Erlanger, J. *Recent Contributions to the Physiology of the Circulation.*
5. * Thayer, W. S. *Chorea, with Especial Reference to Cardio-vascular Manifestations.*
6. Potter, N. B. *Cardiac Hypertrophy in Chronic Nephritis.*
7. Gallant, A. E. *Success. The Surgical Desideratum.*
8. Gwathmey, J. T. *Scientific Administration of Anesthetics.*
9. Adler, L. H. *Medical Specialism; Proctology.*
10. Gessner, H. B. *Surgical Aspects of Tuberculosis.*
11. Harris, M. L. *Testimony and Evidence in Medicine.*
12. Johnson, H. L. E. *National Supervision of Food.*
13. * Cumston, C. G. *The Prevention of the Spread of Syphilis and the Increase of Prostitution.*

2. Tomlinson points out how in dementia the early deterioration of the higher mental processes is accompanied by loss of the most highly co-ordinated motor functions which express them. Thus as memory and power of attention fail, there is a loss of mobility of the face and muscles of expression. The disorder next spreads to the upper, then to the lower, extremities. When this sequence is followed there is never any recovery; when it is not followed there is a chance that motor power may be to some extent recovered.

3. Walton's work shows that, contrary to the general belief, the blood pressure in paresis is high rather than low. This is probably due to the frequent co-existence of arteriosclerosis and renal disease, but even when these are absent, the blood pressure is not constantly low. There is no constant difference in blood pressure between the excited states and the states of depression.

4. Erlanger's paper is devoted mainly to the discussion of two subjects. He first considers blood pressure determination, both systolic and diastolic, with a criticism of the various methods employed. He concluded that determination of the pressure at which there is the greatest rise and fall in the pulse wave is a true measure of the diastolic pressure. This diastolic pressure, moreover, he shows to be a truer measure than the systolic pressure of the driving force of the blood stream. He mentions the study of blood pressure in Cheyne-Stokes respiration, as conducted by Cushing and by Eyster. Two types are distinguished: one form occurring in cases of increased intracranial pressure, in which the periods of hyperpnea mark periods of increased blood pressure; the other form in which the hyperpnoic period follows a fall in blood pressure. The second part of the paper is devoted to the heart and the cause of its beat, whether muscular

in its origin and conduction, or nervous. Recent experiments show that the mammalian heart can be made to beat many hours after death by perfusion with various solutions. The contraction is shown to originate near the mouths of the great veins and to spread in a progressive wave downward over the auricles and then to the ventricles. The auriculo-ventricular band of muscle fibers or muscle bundle of His is shown to play an important part in the transmission of this wave from auricle to ventricle. When this muscle bundle is compressed the wave will not pass to the ventricle from the auricle, and the condition known as "heart block" is produced, the ventricles beating independently of the auricles. Disease of this bundle has been found in all of the four cases of Stokes-Adams disease (heart block) in which it has been examined.

5. From a study and analysis of 108 cases of chorea treated at the Johns Hopskins Hospital and Dispensary, Thayer concludes that there is good reason to think that well-marked febrile symptoms, without rheumatism, occurring in chorea, especially if they are accompanied with undue rapidity or irregularity of the pulse, is at least strongly suggestive evidence of acute endocarditis. It is possible that the fever may be the sign of a deeper-lying infection back of the chorea, but there is nothing in his study to settle the question whether chorea represents a secondary infection or a special localization of an infectious agent responsible for essential manifestations of the disease. The study of the circulatory conditions in old patients still remains to be carried out, but Thayer calls attention to the following points of interest thus far developed in his investigation: (1) Of 689 cases of chorea observed at the Johns Hopkins Hospital and Dispensary during one or more attacks, 25.4% showed evidences of cardiac involvement; such evidence was present in over 50% of the patients studied in the wards of the hospital. (2) Cardiac involvement occurred with somewhat greater frequency in those cases in which there was a history of acute polyarthritis than where such history was absent. (3) Cardiac involvement was commoner in cases of chorea with frequent recurrences than in those in which there was a history of a single attack. (4) In 110 cases of chorea treated in the wards of the hospital there was fever of a moderate extent in almost every instance. (5) In the large majority of the cases in which high fever was present there was evidence of cardiac involvement. (6) There is good reason to believe that the presence of fever in otherwise uncomplicated chorea is, in a large proportion of cases, associated with a complicating endocarditis.

13. Cumston considers the extinction of syphilis not altogether a chimerical dream, but states that the idea is Utopian in the present state of society. One of the most important means at our disposal, he thinks, is hospitalization, and this should be special for this class of disorders, since the end to be attained is prophylaxis, and the first condition to fulfill with this end in view, when dealing with venereal disease, is isolation. This should include not only voluntary hospitalization of those who would not willingly transmit their disease, but also obligatory hospitalization of prostitutes. If, he says, we could sterilize prostitution as we sterilize our surgical instruments the gonococcus and the spirocheta pallida to a great extent would be removed from our list of pathogenic organisms. Cumston considers the woman as the most guilty party in the spread of syphilis and venereal disease, as in the male, he says, there is no homologous condition to that of prostitution in the female. Another excellent measure for the prevention of both verereal disease and prostitution is the proper education of the young of both sexes in sexual matters, and this should be given at the age at which, in each individual case, such instruction becomes necessary for the purpose of moral and physical prophylaxis. He believes that the public should be specially instructed as to the dangers of gonorrhea from the consequences of which so many innocent women are sufferers. The part played by alcohol in the spread of venereal disease is also noticed. Lastly, Cumston mentions the false position of the law and of public opinion as to this matter, the condoning of sexual criminality in the male, and the comparative education above their class of working-girls and the low salaries they receive, as well as the lowered conception of marriage, as factors to be counted in the problem.

Lancet.
Oct. 20, 1906.

1. Ballance, C. A. *Address on Then and Now in Medicine.*
2. Moore, N. *Address on Medical Books.*
3. * Gibson, A. G. *Some Observations on Enlarged Veins in Children.*
4. * Clogg, H. S. *Strangulation of the Appendix in Hernial Sacs.*
5. Kellas, A. M., Wethered, F. J. *The Detection of Sugar in Urine and its Significance in Connection with Life Insurance.*
6. Black, R. S. *A New Aspect of the Pathology and Treatment of Leprosy.*
7. Lawrie, W. D. *A Method of Taking Impression of the Weight-bearing Surface of the foot.*
8. Wingrave, W. *Oral Sepsis in Operations on the Throat.*

3. In many poorly developed children there can be found a ramification of venules on the chest; also one or both jugular veins are often enlarged; this last is very rare in the normal child. In adults a large jugular vein is always emptied during inspiration; in these children inspiration produces only a slight collapse. Gibson gives 14 cases illustrating this; in 57% there was a history of tuberculosis in the family. He believes that this condition of enlarged veins is caused by tuberculous bronchial glands, and considers it to be one of the stigmata of the tuberculous or pretuberculous condition along with the drawn, transparent and soft skin, pallor and listlessness.

4. Clogg discusses the frequency of this condition. Two accidents may happen to the appendix when herniated,—(1) an ordinary acute inflammation; (2) a strangulation of the appendix. The former is the more common, especially in inguinal hernia. Except in very early cases, it is often hard to distinguish between a simple inflammation and that following a strangulation of the appendix. The symptoms are alike in either case except for the temperature which is high from the start in the simple inflammation. Clogg has collected 53 cases of strangulation of the appendix, usually of the appendix alone; of these cases only 3 were male. An absolute diagnosis in these cases was not made. The prognosis is perfectly satisfactory, the results being far superior to those in appendicitis in hernial sacs.

British Medical Journal.
Oct. 20, 1906.

1. * Saundby, R. *The Management of Cases of Advanced Heart Disease.*
2. * Pedley, T. F. *The Rubber Teat and Deformities of the Jaws.*
3. Hayman, A. S. *Combined Antrum Plug and Artificial Denture.*
4. Symmers, W. St. C. *Note on a Filarial Larva in the Blood of a Blackbird.*
5. MacLennan, A. *Memorandum on the Observation of Spirochetes in Yaws and Granuloma Pudendi.*
6. Barlow, T. *Introductory Remarks*, Section on Medicine, Toronto Meeting, British Medical Association.
7. * Dawson, P. M.; Gibson, G. A.; Broadbent, Sir W.; Allbutt, T. C.; MacKenzie, J.; Steven, J. L. *A Discussion on Blood Pressure in Relation to Disease.*
8. * Stengel, A. *Some Clinical Manifestations, Visceral and General, of Arterio-sclerosis.*
9. Thistle, W. B. *The Treatment of Typhoid Fever, an Inquiry regarding the Effect of the Administration of Purgatives upon the Intestinal Lesions of Typhoid.*
10. Smith, F. J. *The Influence of Early Feeding in the Treatment of Typhoid.*
11. Spiller, W. G. *Syringomyelia, extending from the Sacral Region of the Spinal Cord through the Medulla Oblongata, Right Side of Pons and Right Cerebral Peduncle to the Upper Part of the Right Internal Capsule (Syringo-bulbia).*
12. Putnam, J. J. *The Bearing of Philosophy on Psychiatry, with Special Reference to the Treatment of Psychasthenia.*
13. * Flexner. *Experimental Cerebrospinal Meningitis and its Serum Treatment.*
14. Dock, G. *Paracentesis of the Pericardium.*

15. **Rudolf, R. D.; Cummings, S.** *The Influence of Bodily Posture upon the Position of the Heart.*
16. **MacCullum, H. A.** *Gastric Neurasthenia.*
17. **Meyers, C.** *The Pre-Insane Stage of Acute Mental Disease.*

1. Saundby thinks that unless definitely contra-indicated by dropsy, dyspnea, etc., cases of advanced heart disease should take gentle, carefully regulated exercise, rather than stay in bed. He firmly believes in the Schott treatment, but puts little or no value on the carbonic acid gas in the water as a factor in the cure. Rest is indicated when there is dropsy, when walking brings on dyspnea or pain, or when the state of the circulation is so bad as to endanger syncope. A milk diet is the best as long as it is tolerated; otherwise frequent meals of easily digested, non-gas-forming food should be given. If there is dropsy, fluids must be restricted. He also believes in omitting all salt. For heart tonics he depends entirely on digitalis; for vaso-depressor drugs he uses nitroglycerin and erythroltetranitrate. Bleeding and leeching when necessary often produce strikingly good results, while tapping of course will do more in a few minutes than all drugs. Of the purgatives he prefers elaterium. He has no faith in oxygen.

2. Pedley has made a careful study of the jaw deformities caused by the abuse of the rubber nipple and the so-called harmless artificial nipple, "the baby's comforter." He describes the anatomy and physiology of what takes place, illustrating with numerous photographs.

7. In some clinical remarks on arteriosclerosis Allbutt makes a division of the diseases associated with arteriosclerosis as follows: (1) The toxic class — syphilis — lead-poisoning, etc. (2) Cases in which the sclerosis is the result of tensile stress, of excessive blood pressure over a period of years. (3) The involutionary class in which the change depends on a senile or quasi-senile degeneration. In cases of this sort the blood pressure is not usually excessive considering the age of the patient. In the first class, in which acute infectious diseases, especially typhoid, play a large part, syphilis is undoubtedly the prevailing factor; what rôle alcohol plays, he does not think is yet determined. In the second class some perversion of the body chemistry, as yet ill understood, causes high blood pressure with or without kidney disease, and this causes the arterial degeneration; in this class the arteriosclerosis never reaches the stage of extreme calcification found in the senile cases; indeed, there may be excessive blood pressure for years with little or no arteriosclerosis. He does not consider that there is established any definite relation between high blood pressure and arteriosclerosis.

8. Stengel calls attention to the fact, emphasized by Pepper, that in the aged, advancing arteriosclerosis is often apparently the cause of a prolonged fever, 99° to 101°. In other cases arteriosclerosis of the abdominal aorta and the mesenteric arteries may be the cause of digestive disturbances, acute and chronic, flatulency, pain, etc., due directly to the shutting off of the blood supply of the stomach and intestines; he compares it to intermittent claudication in the limbs. The same process usually attacks the kidneys, causing albuminuria and casts as a part of the general condition. This, he says, often causes unnecessary alarm.

13. Flexner has made a careful study of the diplococcus intracellularis of cerebrospinal meningitis, which organism was the cause of the epidemic in New York City during 1904–5, in which there were 4,000 cases with 3,429 deaths. By injections into guinea pigs, monkeys and goats he prepared an anti-serum which, except in one instance, has proved remarkably effective in preventing infection and in aborting the disease in the monkeys experimented on. His control animals all died.

Revue de Chirurgie.

October, 1906.

1. * **Kirmisson, E., and Guimbellot.** *Appendicitis in Young Infants.*
2. **Devic, and Bériel, L.** *A Case of Multiple Tumors of the Bones without Albumosuria.*
3. **Gratschoff, L.** *Radical Cure of Inguinal Hernias.* (Continued article.)
4. **Galzin, E.** *Rare Form of Interstitial Inguinal Hernia; Operation; Remarks on its Pathogenesis.*
5. * **Du Pan, M.** *Cancer of the Rectum.*
6. **Baudet, R., and Kendirdjy, L.** *Vaso-vesiculectomy in Cases of Genital Tuberculosis.* (Continued article.)
7. **Cahier, L.** *Inflammation of Intestinal Diverticula: Diverticulitis.*

1. Twenty-six cases of infantile appendicitis are reported, 9 occurring in the first year of life and 17 in the second. The disease at this age is rapid in its progress and of very grave prognosis, death having occurred in 19 of the series. Operation is indicated at an early date.

5. Du Pan reports 123 cases of cancer of the rectum from the clinic of Kocher. His conclusions are as follows: (1) Heredity, sedentary professions, habitual constipation, hemorrhoids, or trauma, seem to be of but small importance in the etiology. (2) Cancer of the rectum develops more rapidly at about forty years of age than when the patient is older. It is then most often of the colloid type. Its prognosis is very grave. (3) The insidious onset of cancer of the rectum is one of the principal obstacles to good operative results, early diagnosis being quite rare. Physicians should make rectal examinations in all cases of abnormal defecation, and not be content to treat patients for months at a time for hemorrhoids, or chronic diarrhea. (4) The average duration of life of the non-operated cases is twelve months from the beginning of symptoms, while it is fifty-six months in the operated cases. (5) The height of the cancer, the presence of indurated glands, or adhesion to the prostate or vagina are not contra-indications to extirpation of the rectum. Immobility of the tumor, however, constitutes an absolute contra-indication. (6) Preliminary colostomy should always be avoided if possible. It is only used in cases of grave intestinal obstruction. (7) The coccygeal method of Kocher should not be confounded with the sacral or perineal methods. The tendency of the principal surgeons is to reduce bone resection to a minimum, using simple excision of the coccyx. The method of Kocher — amputation of the rectum with a median posterior incision and resection of the coccyx — is the method of choice for removal of tumors of the ampulla and upper portion of the rectum. This allows the freest access with a minimum of lesion. (8) The best treatment of the two ends of intestine, after removal of the diseased portion, is the fixation of the upper end to the anus with or without invagination into the lower segment which has been stripped of its mucosa. Circular suture of the two remaining ends should be abandoned, because of the great danger of infection following such treatment. (9) The peritoneum should be sutured as accurately as possible after mobilization of the intestine, and not tamponed or drained. (10) The after-treatment should be carried out with the greatest care. On the appearance of the least sign of infection, treatment as an open wound with irrigation gives the best results. (11) Kocher's operative mortality has been 14.5%. Ether is the anesthetic used. (12) Local recurrences supervened in 39.7%, usually in the perirectal tissue. Patients should be examined frequently after operation, as recurrences operated on early do well. One patient has remained well fifteen years after having been operated on four times for recurrences. Recurrences become rapidly inoperable. (13) Liver metastases occur through the veins and only when the cells reach these vessels during the operation. Immediate, complete hemostasis is therefore very important. Also no bare bone should be left in the field of operation. (14) Kocher has 25.7% of cases which have remained well over three years after operation.

[This article is very comprehensive and should be read in the original by all interested in the subject.]

Deutsche Medizinische Wochenschrift, No. 42

Oct. 18, 1906.

1. **Enderlen.** *The Treatment of Furuncles, Carbuncles and Phlegmons.*
2. * **Ribbert.** *The Carcinoma Question.*
3. * **Ohm, J.** *The Diagnostic Significance of the Presence of Blood and Lymphocytosis in the Cerebrospinal Fluid.*
4. **Mosse, M.** *A Lecture on Blood Diseases.*
5. **Ahlfeld, F.** *Further Remarks on the Disinfection of the Hands with Hot Water and Alcohol.*

6. Tintemann. *A Case of Poisoning with Hydrocyanic Acid.*
7. * Ehrlich, F. *Bilious Typhoid.*

2. Ribbert describes the behavior of the stroma in carcinoma. The tumor in the earliest stage is encapsulated by a growth of connective tissue, so that it is completely shut off from the normal tissues. This hyperplasia of the connective tissue is due, he believes, to the action of the products of metabolism of the cancer cells, as is also the round-cell infiltration which is often seen. Later on, this connective tissue growth becomes less and less marked, and the cancer cells invade the surrounding structures with greater freedom. This is apparently because the tissues become accustomed to the toxic tumor products, and cease to react with the formation of new connective tissue, a process which may be regarded as the opposite of immunization. Sticker has made the interesting observation that an animal bearing an implantation tumor is immune against further transplantation so long as the tumor is there, but that this immunity soon disappears after the excision of the tumor, and new transplantation then becomes successful. This has led Ribbert to suppose that the tissues after the removal of the tumor soon cease to be accustomed to its products of metabolism, and that after the operation, the injection of such products might hinder the recurrence of the tumor. These products would have to be derived from the individual tumor, because it is probable that they vary in nature with the different varieties of cancer.

3. The presence of blood in the fluid derived from lumbar puncture is usually due either to meningeal hemorrhage, or to cerebral hemorrhage which has ruptured into the ventricles. It is important, however, to make sure that the blood is not an accidental finding, caused by the laceration of a vein in the process of puncture. If this is the case, the blood will be found chiefly in the first part of the liquid removed, it will coagulate and present the color of fresh blood; in the sediment the red corpuscles will appear unaltered. Lymphocytosis of the spinal fluid, if tuberculous meningitis can be excluded, points to the presence of cerebrospinal syphilis, tabes, or paresis. Ohm reports a number of cases in which these characteristics of the spinal fluid were of great diagnostic value; of especial interest was a case of aneurysm of the basilar artery which had ruptured into the meninges. The patient, a man of twenty-eight years, gave a history of previous syphilis, and recently of paroxysmal pain in the back of the neck. He suddenly became unconscious and was brought into the hospital with symptoms of meningitis but no fever. Lumbar puncture showed a brownish-red fluid containing altered red cells, and was followed by temporary improvement. The man then showed a cerebellar gait, pain in the back of the head, and optic neuritis. This combination of symptoms pointing towards a brain tumor, with evidence of meningeal hemorrhage, led to the diagnosis of a ruptured aneurysm at the base of the brain, which was confirmed at the autopsy a few days later.

7. Ehrlich describes two very interesting cases of "bilious typhoid," *i. e.*, typhoid with primary localization in the gall system. The first began with gallstone colic and swelling of the liver, followed by high fever which fell by crisis on the twelfth day. The Widal reaction was positive. In the second case, a man who had had gallstone colic two years before, the initial symptoms were those of cholecystitis with jaundice. The jaundice persisted, pneumonia set in and death took place on the sixteenth day. The autopsy showed cholangitis, diffuse hepatitis, and splenic tumor, but no ulcers in the intestines and no enlargement of the mesenteric glands. The typhoid bacillus was obtained from the blood during life.

Münchener Medizinische Wochenschrift, No. 42.

Oct. 16, 1906.

1. Fischer, B. *On the Experimental Production of Atypical Epithelial Proliferation and the Origin of Malignant Tumors.*
2. * Wichern, H., and Loening, F. *Displacement of the Larynx and Trachea in Diseases of the Chest.*
3. * Saathoff. *The Nature and Early Diagnosis of Aortic Aneurysm of Syphilitic Origin.*
4. Rothfuchs, R. *Gas Phlegmons.*
5. Walljaschko, G. *The Technic of Thiersch Skin-grafting.*
6. Asbeck, L. *The Treatment of Fresh Wounds with Warm, Dry Bandages.*
7. Klaussner. *Case of Congenital Hernia in the Linea Alba.*
8. Doerffer, H. *Intestinal Obstruction by a Murphy Button after Resection of the Pylorus.*
9. Federschmidt. *A Fatal Case of Phosphorus Poisoning.*
10. Seitz, L. *Hebotomy.* (Concluded.)

2. Curschmann, in a recent number of this same journal (No. 33), pointed out the diagnostic importance of displacement of the trachea and larynx in tumors of the mediastinum, especially in aneurysm of the aortic arch. Wichern and Loening report a further series of cases from Curschmann's clinic illustrating this point (sarcoma, pleuritic effusion, pneumo-thorax), and also the fact that the trachea may be *pulled* over to one side in fibroid phthisis or chronic pneumonia.

3. Saathoff has made a careful study of syphilitic aortitis, as described by Heller of Kiel. The most important localization of the process is in the vasa vasorum which show proliferation of the intima, with perivascular areas of round-cell infiltration. Later on, these vessels become obliterated, the blood supply is cut off and necrosis takes place; the muscle and elastic fibers are replaced by connective tissue, the wall is weakened and the ground prepared for the formation of an aneurysm. The favorite seat of this process is the ascending aorta, whence it often passes to the aortic valves, forming one of the frequent causes of aortic regurgitation. An aorta thus affected is puckered, often dilated, and does not show atheromatous ulcers or calcification as a rule. Saathoff reports cases illustrating the early diagnosis of aneurysm, and states that aortic regurgitation occurring without rheumatism, or endocarditis, or demonstrable arteriosclerosis should always arouse the suspicion of syphilitic aortitis. The treatment of such cases of specific aortitis with mercury and iodides, if instituted early, may prevent the formation of aneurysm.

[The subject of syphilitic aortitis is one that has aroused much interest of late, and it would appear that the diagnosis may be made with a tolerable degree of certainty at the post-mortem table. There is little doubt that it is the most frequent cause of aneurysm.]

Die Therapie der Gegenwart.

October, 1906.

1. * Heubner, O. *Pylorospasm in Infants.*
2. * Curschmann, H. *The Nature of Certain Stigmata of Hysteria, and their Importance in Treatment.*
3. * Mendel, F. *Fraenkel's Treatment with Intravenous Injections of Strophanthin.*
4. Bauss, C. J. *Narcosis in Operative Obstetrics.*

1. Heubner contributes an excellent article on the etiology and treatment of pylorospasm, or congenital pyloric stenosis. He considers the process a neurosis, a spasm of *all* the musculature of the stomach, with secondary muscular hypertrophy. That it is congenital is shown by the early onset, the appearance of several cases in the same family, and the later appearance of the neuropathic constitution in many of these children. He bases the diagnosis on four symptoms, viz.: (1) Visible peristalsis, (2) projectile vomiting, (3) diminished urine, and (4) constipation. Out of 21 cases in which the outcome was known, Heubner lost only two, a mortality of 9.5%. Curiously enough, both of these deaths occurred in a family which had already lost a child by this disease. These results, obtained with a purely medical treatment, contrast very favorably with the mortality of 50% in the surgical cases reported. Many of the cases were severe, with marked emaciation. Heubner rejects the common methods of treatment now in vogue, stomach washing and frequent small feedings, claiming that they irritate the stomach and make the spasm worse. The food, preferably human milk, should be given in large amounts at long intervals, and the spasm should be allayed by means of warm poultices continually applied to the abdomen. Improvement in some instances was very slow, the vomiting continuing in abated form for weeks or even months.

These simple measures, consistently carried out, were efficacious in such a large proportion of cases that Heubner considers operation unadvisable except in those which do not improve under medical treatment before the age of three months.

[These brilliant results accomplished by the great German pediatrician promise well for the medical treatment of pyloric stenosis, which should in the future supplant surgical measures, except in a few cases.]

2. Curschmann proves that some of the so-called stigmata of hysteria are not the products of suggestion, but have a real existence. Others are undoubtedly suggested by the physician, for instance, the sign called "ovarie." In treatment, the removal of these stigmata, such as areas of anesthesia, is readily accomplished, and has a very beneficial effect on the other hysterical symptoms.

3. In the hands of Mendel, the use of intravenous injections of strophanthin, as recommended by Fraenkel, was of little benefit in three cases with failure of compensation. These same cases all improved with Mendel's intravenous injections of digitalone, 2 gm. daily.

Bacterial Processes in Advanced Anemia. Herter (*Journal of Biological Chemistry*, August, 1906) guardedly proposes the theory that pernicious anemia may be due to an infection of the intestinal tract with the Bacillus aërogenes capsulatus. He finds this organism regularly and in large numbers in the fecal matter of patients with pernicious anemia, whereas in ideal conditions of human digestion, the organism is present only in small numbers. He finds that reductions in the number of capsulati, in these patients, are followed by an improvement of symptoms. He further finds that neutral filtrates from cultures of this bacillus in blood bouillon have a marked hemolytic power. Seventeen cases of anemia were studied, 9 undoubtedly pernicious, 4 probably pernicious and 4 possibly belonging to the same class. These cases as a rule showed evidences of a moderate increase in intestinal putrefaction, but not more than is common in intestinal indigestion. Much more striking was the prevalence in the feces of Gram-positive organisms, especially of the capsulatus type, and a relative diminution of Gram-negative bacilli of the colon type, so prevalent in normal feces. Cultures showed the presence of capsulati in moderate or large numbers in every case examined; in 12 control cases these organisms were few or absent except in two, one of which had an intestinal indigestion and the other advanced diabetes. Intravenous injections of fecal suspensions into rabbits, which were soon afterward killed and incubated, resulted in a typical growth of capsulati in all of the three anemia cases and in none of the three normal cases tested. To meet the obvious contention that the prevalence of the Bacillus aërogenes is not a cause but an effect, the following arguments are given: First, that serious digestive disorders frequently precede the anemia, and second that, in the cases observed, a diminution of bacilli of the capsulatus type preceded improvement of the anemia. It is admitted, however, that in diseases such as gastric carcinoma the diminution of the acidity of the gastric juice may pave the way for a capsulatus infection, which may contribute to the anemia.

[This evidence that the bacterial condition is cause and not a secondary effect of the anemia seems hardly conclusive. More investigations are necessary, particularly as to the occurrence of capsulati in pathological conditions other than anemia associated with diminished gastric secretion.]

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Miscellany.

THE BACTERICIDAL POWER OF SILVER PREPARATIONS.

To the issue of the Journal for Sept. 27 last, Dr. George S. Derby contributed an experimental study on the bactericidal power of various silver preparations, which led to the following conclusions:

The silver preparations tested, with the exception of argyrol and collargol, are efficient bactericides in the laboratory.

Their bactericidal action and that of Lugol's solution and of corrosive sublimate is markedly retarded by the addition of a serum, such as hydrocele fluid or bovine blood serum.

It seems probable that on this fact largely depends the comparative inefficiency of antiseptics..

Dr. Derby's laboratory experiments were made with the Staphylococcus aureus at the Massachusetts Charitable Eye and Ear Infirmary. Dr. Myles Standish[1], on the other hand, concludes from his clinical experience at the same institution that the bactericidal action of silver is much greater in cases of gonococcic than of staphylococcic infection; that the modern silver preparations are efficient in the control of gonorrheal infection of the conjunctiva; and that they have greater bactericidal properties in this disease than the laboratory experiments on other microorganisms would lead us to expect.

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MEDAL OF HONOR FOR DR. GEORGE F. SHIELDS.

Dr. George F. Shields has received notification that, by direction of the Acting Secretary of War and President Roosevelt, a Congressional medal of honor has just been awarded to him, for distinguished bravery in the action at Tullahan River, Luzon, March 25, 1899. On this occasion, the order states, Dr. Shields, while serving as brigade surgeon, with rank of major, under General Wheaton, voluntarily exposed himself, with four men, to the fire of the enemy, and went to the relief of two native Filipinos who lay wounded a hundred and fifty yards in front of the line. One of them he himself carried to a place of safety. Dr. Shields was appointed a brigade surgeon by President McKinley in 1898, and served until June, 1900. Shortly after that time General Wheaton recommended him to the United States Brevet Board for brevet of lieutenant-colonel for gallantry at Rio Grande de la Pampamga, April 27, 1899, and for brevet of brigadier-general for gallantry at Zapote Bridge, June 13, 1899. It is stated that this was the first time that an army surgeon had been recommended for brevet of brigadier-general. In his letter of recommendation to the board General Wheaton said of Major Shields: "He at all times sought the place of greatest combat, and his services to the wounded and dying were the greatest in emergencies that I know of. The brevets I have recommended can be conferred on no braver officer." At the time the Spanish-American War began Dr. Shields was a professor of surgery in the University of California. Since he left the army medical service he has resided in New York, and he is at present on the surgical staff of the New York Polyclinic.

[1] Ophthalmic Record, Aug., 1906

Correspondence.

PHLEBOTOMY IN RETROSPECT.

Providence, R. I.,
Nov. 8, 1906.

Mr. Editor: Apropos of your editorial of November first, relative to the use and abuse of phlebotomy, I cannot resist the temptation to reproduce some lines from the "Regimen Sanitatis Salernitanum," which may be of interest to the curious. This famous poem had its origin in the city of Salerno, the earliest school in Christian Europe where medicine was professed, taught and practiced. In the latter part of the eleventh century, Robert, Duke of Normandy, having mortgaged his dukedom for ten thousand marks to his brother William Rufus, set out upon his crusade to Palestine. Upon his return, he stopped to consult the physicians of Salerno, for a wound which he had received in his right arm from an arrow supposed to have been poisoned, and which had degenerated into a deep ulcer. The poem, "Regimen Sanitatis Salernitanum," or as it is more commonly called the "Schola Salernitana," was composed for the preservation of his health by the physicians of Salerno. It is addressed to Robert, as King of England, in these words, "Anglorum Regi scripsit tota Salerni," and so great was its popularity, that it became a manual for those who were not regularly initiated into medical science, as well as a textbook for the student and for the learned professors. I transcribe so much of it as relates to phlebotomy, wherein much sound sense is at once manifest. The translation is in old English.

Of Bleeding many profits grow, and great,
The spirits and sences are renewed thereby,
Though these mend slowly by the strength of meat,
But these with wine restored are by and by:
By bleeding, to the marrow cometh heat,
It maketh cleane your braine, releeves your eie,
It mends your appetite, restoreth Sleepe,
Correcting humours that do waking Keepe:
All inward parts and sences also clearing,
It mends the voice, touch, smell, taste, and hearing.

Three speciall months, September, April, May,
There are in which tis good to ope a veyne,
In these three months the moon bears greatest sway,
Then old or young that store of blood containe,
May bleed now, though some elder wizards say,
Some daies are ill in these, I hold it vaine:
September, April, May, have daies a peece,
That bleeding do forbid and eating Geese,
And those are they forsooth of May the first,
Of tother two the last of each are worst.

But yet those daies I grant and all the rest,
Have in some cases just impediment,
As first if nature be with cold opprest,
Or if the Region, Ile, or Continent,
Do scorch or freeze, if stomach meat detest;
If Baths or Venus, late you did frequent,
Nor old, nor young, nor drinkers great, are fit,
Nor in long sickness, nor in Raging fit,
Or in this case if you will venture bleeding,
The quantity must then be most exceeding.

When you to bleed intend, you must prepare
Some needful things both after and before,
Warme water, and sweet oyle, both needful are,
And wine the fainting spirits to restore,
Fine binding cloths of linen, and beware,
That all that morning you do sleep no more.
Some gentle motion helpeth after bleeding,
And on light meats a spare and temperate feeding.
To bleed, doth cheare the pensive, and remove,
The raging furies bred by burning love.

Make your incision large and not too deepe,
That blood have speedy yssue with the fume,
So that from sinnewes you all hurt do keepe,
Nor may you (as I toucht before) presume
In six ensuing hours at all to sleepe,
Lest some slight bruise in sleepe cause an apostume.
Eat not of milk, nor ought of milk compounded,
Nor let your braine with much drink be confounded,
Eat no cold meats, for such the strength impaire
And shun all misty and unwholesome ayre.

Besides the former rules for such as please
Of letting blood to make more observation,
Know in beginning of all sharpe diseases,
Tis counted best to make evacuation:
To old, to young, both letting blood displeases,
By yeares and sickness make your computation,
First in the Spring for quantity, you shall,
Of blood take twice as much as in the Fall:
In Spring and Summer, let the right arm blood,
The Fall and Winter for the left are good.

Very truly yours,
John L. Donley, M.D.

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LETTER FROM PARIS.

(From our Special Correspondent.)

The Latest Treatment of Certain Forms of Intestinal Dyspepsia.

Paris, Oct. 28, 1906.

Mr. Editor: One of the great difficulties that confronts the medical practitioner, as his experience advances and widens, is a progressively decreasing ability to react against therapeutic nihilism.

The more we are brought into contact with disease, the more deeply do we become convinced of our ignorance of the true inwardness of morbid processes. Faith in the efficacy of our intervention in illness diminishes in inverse ratio to the years that have elapsed since we first entered on our career. And the disposition to stand aside and let nature manage the case in most instances grows more and more irresistible.

To such an extent is this true that many conscientious physicians not only feel that their remedies are futile, but actually *fear* to give them in illness, lest they may effect positive harm by unwittingly doing something to hinder the means of defence that nature is spontaneously bringing to bear against the morbid agent.

There can be no doubt, however, that extreme therapeutic skepticism is a state of mind to be discouraged. The writer does not wish to seem to commend in any way the polypharmacist, or the practitioner met with in all medical publications who is so constantly successful in "controlling" this or that symptom with a given drug! But there is unquestionably a position to be taken up somewhere between these two extremes.

The proper frame of mind would appear to be to resort to the few reliable drugs we possess in suitable instances; to leave the field to nature in the rest, — which will give the patient a better chance for recovery than in the hands of the polypharmacist; and in general to remain unprejudiced and unprepossessed, ever on the lookout for good things and good methods, harboring always in our innermost thoughts the hope for the coming of the Great Messiah who will be to medicine what Pasteur and Lister were to surgery and obstetrics.

The reason why we experience so much trouble in remaining in this philosophic state of mind is that as our career pursues its course we see so many therapeutic ideas arise, describe an orbit of greater or lesser arc, and then sink into total oblivion, each one of which carries away forever a certain quantity of our power of belief. To witness what we thought to be such well-grounded reasons for hope so regularly brought to naught, seems to be more than our human natures can bear up under.

I had the misfortune as a young physician of witnessing right at the beginning of my career two of the biggest therapeutic collapses of our day, both of them launched under the auspices of men of the highest order: Koch's tuberculin, and Bouchard's treatment of medical disorders by internal antisepsis.

Who is there that has forgotten the furore raised in France by the researches of that eminent scientist Bouchard? His publications were so attractive; his theories seemed so plausible and intelligent. This was scientific therapeutics at last! You counted your germs, and estimated your urinary toxicity before and after; the proof was mathematical and just as manifest as that two and two make four. How was it that no one had thought of internal antisepsis earlier?

Practitioners of those heydays of our youth will remember the enthusiasm and conviction with which in typhoid fever we administered Bouchard's intestinal disinfectant. His prescription was as follows:

Iodoform, 1 gm. Dissolve in ether, 10. Add vegetable charcoal, 100. Let the ether evaporate. Finally, mix with glycerin, 100.

This villanous concoction was more like shoe-blacking than anything else, and the above amount had to be taken each twenty-four hours (it made about ten tablespoonfuls).

As I look back now I am lost in marvel that human beings, seriously ill, could have been able to summon up the Christian fortitude to swallow such filth at such doses. Any one who thinks differently on the subject had better have the prescription made up and try a little; he will have the experience of his life!

Now the entire medical world of France was swayed for years by Bouchard's authority, as he was one of the chief ornaments of his medical generation and a man most universally looked up to and respected. Consequently, the number of enteric cases treated on this plan must have been very great. There can be no doubt that his intentions were excellent; but it must be admitted that therapeutically he had not a "happy hand." So that it is greatly to be feared that on the judgment day his appearance at the bar will be signalized by a general waving of loops of sooty intestines in lieu of garlands, on the part of this army of patients, and that the distinguished professor will then have a *mauvais quart d'heure* to pass.

And this is only one of the sins for which he will have to answer; but I have not time at present to write about the endless damage he did to his compatriots' stomachs with his various naphthols.

Well, as I said, my early days were passed amid the fascinating doctrines of internal antisepsis; and when this finally collapsed and disappeared, — tried and found wanting, — I was left stranded on the shore of therapeutic unbelief, feeling that I could never trust any one again. All this had, of course, been preceded by the Koch fiasco.

This is why I have so much trouble in overcoming incredulity in new theories, and specially when they have to do with what — save the term! — has been euphonically called the "intestinal flora." This I always look on as a personal affront, after the Bouchard experience.

I wonder, by the way, what the said "flora" felt like in the old days when Bouchard's huge dollops of black pomatum came tumbling in on it in rapid succession by the esophagus. A good deal like the wretched inhabitants of St. Pierre when Mont Pele began to rain scoriæ on them, I imagine!

This being the past history of intestinal antisepsis it took courage for any one to come forward with further ideas on the subject. Such men have been found, however, and we are now invited to treat various forms of intestinal infections on the plan of the old adage of taking a thief to catch a thief.

The general idea of this latest method is this:

Normal digestion is accomplished partly by means of soluble ferments and partly by means of micro-organisms.

Considering the latter only, they are divided, *grosso modo*, into two classes: aërobic, that split up carbo-hydrates in acid media and produce lactic acid, inhabit the upper portion of the digestive tract, and are more or less beneficent in action; and anaërobic, that decompose albuminoid foods in alkaline media, dwell principally in the colon, and are capable under certain conditions of getting the upper hand of things and of giving rise to mischief untold, occasioning enteritis and the entire chapter of auto-intoxication through absorption of the ultimate products of albuminoid putrefaction.

Now the main idea of the new method of treating these disorders is the administration of cultures of a more vigorous aërobic microbe than the ordinary bacillus lacti, which will be able to develop much farther down in the digestive tube, splitting up carbo-hydrates even in the colon with production therein of an abundance of lactic acid and the consequent acidification of the alkaline media and discomfiture of the noxious anaërobic germs.

Such strenuous germs have been found, cultivated and are administered to the patient in various ways, one of them, a bouillon, being prepared as follows: salt, 5; peptone, 10; lactose, 20; water, *q. s. ad* 1,000. In addition to this, all food supplies for the enemy are cut off, albuminoid articles of diet being completely suppressed for the time being; while on the other hand the welfare of the invading forces is carefully looked after by the administration of a starch diet and lactose drinks.

A prescription, then, for such a case reads as follows:

1. Each morning, cold sponge, alcohol frictions, calisthenics.

2. Plenty of exercise, morning and afternoon; walk, bicycle, tennis.

3. Diet. Suppress, for the time being, milk, cheese, eggs, meat, fish, tea and coffee; all other foods allowed; dry or fresh vegetables, fats, bread, pastry, pastes, fruit, prepared in any way desired, even with sauces containing small quantities of milk, eggs or grated cheese.

Example: Early breakfast, vegetable soup. At noon, soup (meat or water), a farinaceous vegetable (potato, chestnut, rice, or, in smaller amounts, beans, peas or lentils) or else pastes; a fresh vegetable, cooked or as a salad; carrots, turnips, tomatoes, cauliflowers, cucumber, mushrooms, etc.; pudding, rice or semolina, with pastry but without cream or eggs; cakes, preserves, honey, and raw or cooked fruit. Four o'clock: bread and butter. Dinner: vegetable soup, a cooked green vegetable, raw salad, pudding, fruit and dessert.

As a drink, two large glasses per meal of water containing per bottle one of these powders: powdered lactose, 40 gm.

4. While taking the soup in the morning and at noon, a wineglassful of the following must be swallowed: Culture bouillon: symbiosis of Bac. bifidus and of Bac. acidiparalactici.

5. Stop all enemas, laxatives, purgatives, suppositories, etc.

For the time being this treatment seems to answer, though it has not yet stood a very long test, — about a year. These cases of chronic enteritis have been a sore trial to the physician; they are legion among the fair sex, with whom intestinal disorders seem to predominate next to neurotic conditions.

At any rate, at the present time all of these patients are taking this nasty bouillon (ugh!), with the starch diet and sweetened water, — not to speak of sub-varieties of the treatment, such as yeasts, grape-frements, etc. Think of the *psychic* effect on a neurotic patient, wearied of ordinary suggestions, bismuth and castor oil, of a prescription reading:

Symbiosis of Bac. bifidus and of Bac. acidiparalactici.

How can such a remedy as that possibly fail to cure, for a while?

So numerous is this class of patients that certain physicians have specialized for it.

Travelers in Switzerland will remember Lausanne, a small town on Lake Geneva, chiefly known to foreigners for its excessive summer heat, bad railway station, and numerous schools for boys.

Well, the Mecca for the female enteritis case is now Lausanne, where two physicians have made a European reputation by their skill in treating this form of disease. *Entire hotels* have been organized there for the reception of these patients only, the *chefs* being bound to supply the table with nothing but Dr. X's diet, Nos. 1, 2, 3, etc.

So that we here see the curious instance of an unimportant Swiss town of about 40,000 in which is a medical school comprising one of the foremost surgeons of the day; one of the finest (if not the finest) oculists in Europe; and two celebrities on diseases of the digestive tract, to whom people flock for advice from all parts of the Continent, — not to speak of other minor lights. This is, I think, an occurrence sufficiently out of the ordinary to merit having your attention drawn to it.

"SPECTATOR."

RECORD OF MORTALITY

For the Week ending Saturday, Oct. 27, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,299	391	Quincy	4	3
Chicago	505	148	Waltham	4	2
Philadelphia	469	129	Gloucester	—	—
St. Louis	—	—	Pittsfield	4	—
Baltimore	204	50	Brookline	6	2
Cleveland	—	—	North Adams	3	0
Buffalo	—	—	Chicopee	2	1
Pittsburg	—	—	Northampton	15	3
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	3	2
Washington	—	—	Hyde Park	3	1
Providence	65	19	Newburyport	—	—
Boston	204	47	Leominster	1	—
Worcester	33	10	Melrose	—	—
Fall River	36	19	Woburn	4	1
Cambridge	22	9	Marlborough	2	0
Lowell	29	10	Westfield	—	—
Lynn	19	6	Peabody	—	
New Bedford	23	6	Revere	2	1
Springfield	20	2	Clinton	2	0
Lawrence	23	7	Attleboro	3	1
Somerville	27	6	Adams	4	1
Holyoke	9	5	Gardner	11	2
Brockton	14	4	Milford	3	—
Malden	10	4	Weymouth	2	0
Salem	14	2	Framingham	—	
Chelsea	13	7	Watertown	1	0
Haverhill	10	2	Plymouth	—	—
Newton	4	3	Southbridge	6	3
Fitchburg	8	4	Wakefield	—	—
Taunton	12	4	Webster	—	—
Everett	7	1			

APPOINTMENT.

Mrs. Margaret O'Callaghan has been appointed to the board of trustees of the consumptives' hospital to fill the vacancy caused by the resignation of Miss Elizabeth Power.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING NOV. 10, 1906.

T. H. Streets, medical director. To duty in command of the Naval Hospital, Washington, D.C.

D. Dickinson, medical director. Detached from duty in command of Naval Hospital, Washington D.C.; to continue other duties.

J. H. Payne, Jr., passed assistant surgeon. To duty at Navy Recruiting Station, Providence, R. I.

G. G. Hart, acting assistant surgeon. To duty with marine recruiting party, Atlanta, Ga.

P. E. Garrison, assistant surgeon. Detached from Naval Medical School; to duty as medical zoologist for the Bureau of Science, Manila, sailing from Seattle, Nov. 28, 1906.

E. T. Morse, pharmacist. To duty at the Naval Medical School Hospital, Washington.

P. M. Rixey, surgeon-general. To special temporary duty in connection with the President's trip to Panama and Porto Rico.

C. D. Langhorne, surgeon. Detached from "Brooklyn" when placed in reserve; home and wait orders.

J. T. Kennedy, passed assistant surgeon. Detached from duty at the Naval Station, Guantanamo; home and wait orders.

R. B. Chapman, assistant surgeon. Detached from "Supply"; to Naval Station, Cavite, P. I.

J. W. Backus, passed assistant surgeon. Detached from "Texas" when placed in reserve; to duty Naval Station, Guantanamo, Cuba, and additional duty on the "Amphitrite."

T. N. Phillips, pharmacist. Detached from Naval Medical School Hospital, Washington, Nov. 14, 1906; to the U. S. Naval Hospital, New Fort Lyon, Bent County, Colorado.

T. A. Berryhill, surgeon. Detached from duty U. S. Naval Medical School, Washington, Nov. 14. 1906; in command of Naval Hospital, New Fort Lyon, Bent County, Colorado.

J. G. Field, surgeon. Detached from duty in the Bureau of Medicine and Surgery, Nov. 14, 1906; to duty at the U. S. Naval Hospital, Bent County, Colorado.

U. R. Webb, passed assistant surgeon. Detached duty on the "Brooklyn" when that vessel is placed in reserve; to the Naval Torpedo Station, Newport, R. I.

RECENT DEATHS.

Clarence Walter Spring, M.D., M.M.S.S., died in Fitchburg, Nov. 9, 1906, aged forty-seven years.

Edward H. Miller, Professor of Analytical Chemistry at Columbia University, New York, died from typhoid fever at the hospital in Nyack, N. Y., on Nov. 8, in the thirty-seventh year of his age. He had been connected with Columbia ever since his graduation, and had held his professorship for the past two years. Professor Miller was the author of several works on chemistry. He was a Fellow of the Chemical Society of London and at the time of his death a member of the executive committee of the Society of Chemical Industry, London.

Dr. William J. Brunner, of New York, died on Nov. 8, in the fifty-third year of his age. He was a native of Felsberg, Germany, and came to this country in 1874. He was at first a pharmacist and then took up the study of medicine, and was graduated from the medical department of the University of the city of New York in 1879.

BOOKS AND PAMPHLETS RECEIVED.

Students' Aids Series. Aids to Gynæcology. By Alfred S. Gubb, M.D. (Paris), M.R.C.S. (Eng.) Fourth edition. Illustrated. New York: William Wood & Co. 1906.

Toxicology. The Nature, Effects and Detection of Poisons, with the Diagnosis and Treatment of Poisoning. By Cassius M. Riley, M.D. Third edition. Revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

Medico-Chirurgical Transactions Published by the Royal Medical and Chirurgical Society of London. Vol. 89. London. 1906.

Travaux de Chirurgie Anatomo-Clinique. Par Henri Hartmann. Avec la collaboration de P. Lecène et J. Okinzcyc. Paris. 1907.

Transactions of the Twenty-eighth Annual Meeting of the American Laryngological Association held at Niagara Falls, N. Y., May 31, June 1 and 2, 1906. New York. 1906.

Some Professional Reminiscences. By George F. Shrady, M.D. Reprint.

Myomectomy. By Charles P. Noble, M.D. Reprint.

Nephrectomy Followed by Pregnancy and Labor. By Charles P. Noble, M.D. Reprint.

The Relation of the Technique of Nurses and of Hospital Apparatus to the Healing of Wounds. By Charles P. Noble, M.D. Reprint.

Commentarii di Clinica Medica desunti dalla Morfologia del Corpo Umano. Volume Primo. Milano: Ulrico Hoepli. 1907.

Thirty-seventh Annual Report of the State Board of Health of Massachusetts. Boston. 1906.

State Board of Health of Maine. Formaldehyde Disinfection. A New Process.

Typhoid Fever. Its Prevention and Restriction. Issued by the State Board of Health of Maine.

Eating to Live with Some Advice to the Gouty, the Rheumatic, and the Diabetic. A Book for Everybody. By John Janvier Black, M.D. Philadelphia and London: J. B. Lippincott Co. 1906.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D. Vol. VII. Series 1906. Chicago: The Year Book Publishers.

Die Schwangerschaft — Eine Infektion. Von San.-Rat Dr. J. Starzewski. Reprint.

The Physician as a Character in Fiction. By C. B. Burr, M.D. Reprint.

Further Experiences in the Radical Operation for the Cure of Aneurysm by the Author's Method of Intrasaccular Suture (Endoaneurysmorrhaphy). By Rudolph Matas, M.D. Reprint.

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Address.

THE MAJOR SYMPTOMS OF HYSTERIA.*

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XI.

THE DISTURBANCES OF ALIMENTATION.

We shall now enter upon a rapid survey of the visceral disturbances of the same patients, and we shall begin by studying a very important phenomenon, that of anorexia. This disorder, both mental and physiological, consists chiefly in the systematic refusal of food in certain digestive disturbances and in a consequent inanition. Its accurate description was made almost simultaneously by W. Gull in 1868 and by Leségne in 1873.

I. Though this accident may appear at all ages, the greatest number of cases are to be met with in girls of sixteen to twenty-five; the affection is a chronic one and may be divided into three principal periods. The first period might be called the gastric period, for everybody fancies that the disease consists simply in an affection of the stomach. The second period is the moral period, or the period of struggling, because the parents and relatives become disquieted at the indefinite prolongation of these ultra strict diets and try by all means to modify the obstinacy of the patient, who replies by all possible artifices. Lastly comes the third period, of inanition, with physical symptoms often followed by death.

II. Various theories of anorexia give the preeminence to one or the other of the essential phenomena. Leségne and later Charcot gave the pre-eminence to a delirious disturbance, to a fixed idea. Some are over anxious about their stomachs; some very often have the commonplace idea of suicide; many refuse to eat by a kind of coquetry, because they are afraid to grow big. The authors who have observed such ideas seem to me to be inclined to exaggerate their importance. I believe there is on this point a diagnosis to be made on which I have much insisted in the first volume of my work on obsessions (1903). Refusals of food are not always a phenomenon of the hysterical neurosis; they belong at least as often to the psychasthenic neurosis. It is in the latter neurosis that fixed ideas remain alone and play a predominant rôle to the end. In real hysterical anorexias the fixed idea which exists at the outset becomes complicated with very serious phenomena, as the loss of appetite, the anesthesia of various organs, certain phenomena of systematic paralysis of the acts relating to alimentation and great motor agitation. Other theories tried to take these new phenomena into account, and this is done in particular by the theory of anorexia through the anesthesia of the stomach. These anorexias justify their name, and they are, above all, losses of the sensation of hunger, and we recognize in them the existence of numerous anesthesias, in the mouth, on the tongue, on the internal part of the cheeks, in the esophagus; at the same time may be noted the absolute anesthesia of the special senses of taste and smell. Now a patch of cutaneous insensibility is often recognized seated just in the epigastric region. According to the law that often superficial anesthesia of the skin accompanies the anesthesia of the organs placed under it, it is probable that the mucous membrane of the stomach is as anesthetic as that of the mouth. These patients, feeling neither taste nor smell, nor any excitations of the mucous membrane of their stomachs, it is likely that their digestion will be disturbed.

There is some truth in this conception, but it does not seem to me to be complete. This psychic insensibility does not play a considerable material part; the loss of appetite would not make the patient incapable of eating or of digesting. An exaggerated importance is ascribed to the rôle played by these local phenomena of the mouth and stomach in the general feeling of hunger.

I wish a more thorough investigation might be made of the excessive fondness for physical exercise that characterizes a whole group of anorexic patients; they have for years a mania of walking, of running, of at least as great gravity as their mania of refusing to eat. The first explanation of this last fact was presented by Leségne and by Charcot. These patients want to make those around them believe that they are still strong and robust in order not to be compelled to eat more. Other authors admit that the patients walk in order to grow thin. If in some cases that exaggeration of motion can be explained by such reasoning, it would be absurd to generalize such explanations. The phenomenon is much more important; it is connected with the suppression of the feeling of fatigue which is much more important than the anesthesia of the stomach. It comprises a general excitation, a strange feeling of euphoria which does away with the need of eating.

The function of alimentation is one of the most considerable systems of thoughts that exist in the brain of an animal. In complete anorexia you will find the loss of all the elements of this system, — the loss of the sensation of weakness replaced by a pathological euphoria, the loss of the sensation of the organs, and, more than is generally believed, the loss of certain movements connected with alimentation. Hysterical anorexia is, at bottom, a great amnesia and a great paralysis.

III. I should like rapidly to add a few details about some less complete dissociations of this great psychological function of conscious alimentation. This dissociation may bear on all the elements and suppress them separately. The patients may lose the functions of the lips in alimentation as they lose them in speech; they may lose the functions of the tongue or of the teeth or of the pharynx. Many of these patients cannot make their food pass from the esophagus into the stomach. The amnesia of defecation plays a rôle in many obstinate constipations, and nothing is more important for a physician than to know thoroughly the neuropathic disturbances of micturition.

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* Author's abstract report of eleventh, twelfth, and thirteenth lectures, delivered at the Harvard Medical School, Nov. 12, 14 and 15.

XII.

THE TICS OF RESPIRATION AND ALIMENTATION.

The phenomena in regard to respiration are about of the same kind as those in regard to alimentation; though they present less gravity, they are of infinite variety.

I. Let us first speak of respiratory paralyses and at once place a very curious example before you which was published a few years ago by M. Lermoyez, a distinguished French specialist for diseases of the nose and larynx. A girl of about twenty was taken to him because her nose was obstructed by adenoid vegetations; the operation was effected without difficulty, but she remained obliged to keep her mouth open as before, though the respiratory channels were wide open. This girl suffocated when you shut her mouth while leaving her nose open. There was no obstacle at any point; there was only a singular disturbance of the nervous system, an incapacity of effecting the respiratory motion as soon as the mouth was shut. The girl seemed to have forgotten how one manages to breathe through one's nose. Can a finer confirmation be found of our teaching on functional paralyses and amnesias?

However, no asphyxia exists quite corresponding to anorexia, suppressing any respiration and going as far as death. I have seen several persons die of hunger, but I have not seen any one die of suffocation. Alimentation, or at least the mechanical part of it, is entirely a conscious voluntary function, whereas respiration is not entirely a conscious and voluntary function. This difference between hysterical anorexia and hysterical asphyxia as regards danger, is still another fact to be pointed out in order to justify our interpretation of the disease. However, there is, as Mosso called it, an element of superfluous respiration, or respiration of luxury, which depends on cerebral activity; it is that respiration of luxury that hystericals can modify in a thousand ways.

We first find disturbances of the respiratory sensibility, a new kind of systematic anesthesia. We note anosuria, the loss of pharangeal reflex, and, above all, a special anesthesia relative to respiration itself and to asphyxia. This phenomenon may be studied by the apparatus of M. Bloch, 1897. These disturbances of the sensibility are accompanied with motor disturbances of which the subjects are more or less conscious. The patient complains of feeling oppressed, of suffocating; he can no longer add to the respiration that luxury to which we are accustomed. The accidents are quite conformable to the rules that apply to paralyses and that we already know. We note also absence of regularity and harmony in the breathing; the disturbance is less a paralysis proper than a want of synergy. This is also interesting for the comprehension of these paralyses, which are, as I have told you, paralyses of a system.

In certain cases the troubles may assume more determinate forms which have greater resemblance with known paralyses. I indicate to you a problem which I discussed in the Congress of Psychology held in Paris in 1900 about a case of hysteria in which we could observe precisely the rhythm of Cheyne-Stokes. This respiration, according to the studies of Mosso, may be found in subjects who are in a condition of half sleep and who are incapable of any attention. It was exactly the same in my observations on this respiratory rhythm in hystericals. In the same order of ideas, I wish to indicate to you, rather as a curiosity, a paralysis of the diaphragm with alternating see-saw respiration ("*Névroses et Idées Fixes*," I, p. 329, and II, p. 414). It is a phenomenon, the presence of which in hysteria is still open to discussion. If it is confirmed, we shall be obliged to admit more profound older functions relative to the movements of the diaphragm which may be affected in certain serious forms of hysteria as old functions are disturbed in hemiplegia and hemianopsia.

II. To those paralyses of the respiration are added, as is always the case, and according to the rule we know, automatic agitations. As there are a quantity of small distinct functions, each of them may emancipate itself separately and give rise to very varied tics. Let us put in the first the exaggeration of the total respiration, polypnea. Take notice of that continual parallel of the disturbances of respiration and of those of attention. After this we can rapidly enumerate the exaggerations of details, the tics bearing on such or such a particular function. Among inspiration tics we consider the continual sighs, the sobs, the yawns, the hiccough, which is very frequent and important. This rapid inspiration, with a degree of spasm of the glottis determines a certain thoracic vacuum, which causes an aspiration in all the organs. This will presently play a large part in the phenomenon of esophagia, with patients who swallow air and in vomiting. Among the expiratory tics we shall range the hysterical cough, the automatic laughter, the most varied cries, the famous hysterical barks. All these tics may be mixed with one another, as we see when the hiccough is regularly associated with eructation, because the stomach is quickly full of air, as we see also in the association of respiratory tics with disorders of speech. With those same complex tics of respiration, I should like to connect an exceedingly curious phenomenon, the swelling of the abdomen, or meteorism, which giver sise to the most common and grotesque medical errors. After having passed in review the old theories of this phenomenon, I am much more inclined to believe that it is due to respiratory troubles. One of the meteorisms is a spasm of the diaphragm; the other is in relation with esophagia.

III. Some other important tics depend on the function of alimentation, but they are at the same time complicated with a respiratory phenomenon. In the first, the function of alimentation, emancipated from the personal consciousness, may become exaggerated and give rise to various forms of boulimia. One very interesting form is the polydipsia which is not to be confounded with dipsomania. This disorder is in my opinion the very origin of the singular symptom of polyuria which has not been always well understood.

After these great automatisms of the function of alimentation we have to point out to you a number of partial disturbances, spasms of the jaws and cheeks, spasms of the pharynx, tics of perpetual spitting and salivation, tics of eructation, belches, regurgitations, merycism, etc. These movements of aspiation induced by abnormal respiration take a greater importance still in the hysterical vomiting. Nowadays, the attention of physicians is much more directed to the hysteria associated with some organic affection. Very often, but not always, affections of the stomach, and, above all, the ulcer of the stomach, plays a certain rôle at the outset of this hysterical vomiting. This is especially the case with the vomiting of blood, the hematemeses; but the diagnosis of pure hysterical hematemesis is now less readily accepted than formerly.

XIII.

THE HYSTERICAL STIGMATA — SUGGESTIBILITY.

The first authors who described hystericals were always struck with the diversity and complexity of their symptoms. The need of unity under diversity, which has never been so serious as in this study, has enlarged a problem that upon the whole exists in every medical research,—the problem of the stigmata. In all these patients a common character must be found which is with all of them the starting point of the observed symptoms and serves to diagnosticate the hysterical character of the accident.

I. Of course this stigma has varied very much, for it reflects the theories of each period on the diseases one considers. Now the essential stigma of hysteria was the convulsive attack, now the hysterical ball. For these fifty years about, especially under the influence of the school of Charcot, one symptom has become the preeminent stigma, namely anesthesia. The singling out of this symptom was in some degree an unconscious return to the past. This research has allowed clinicians to establish that, in many cases, various anesthesias accompanied most hysterical symptoms. This method has caused medicine to make great progress; it has successively brought about the discovery of a large number of unknown hysterical symptoms, of special spasms, tremors, localized pains, etc. Must it continue to dominate in medicine and must anesthesia be made an essential symptom? The criticism is for a great part justified, for hysterical anesthesia does certainly not play always in practice the absolutely preponderant rôle that Charcot maintained it did. This anesthesia is not so easy to recognize as was believed; it has, as we have seen, very delicate psychological characters; it is very mobile, and your method of examination may cause a real anesthesia to disappear or entirely create an anesthesia that did not before exist. When you have to deal with a new patient, who has not yet been touched, you recognize with astonishment that anesthesia is rarer than we said formerly. In my opinion the two meanings of the word " stigma " must be separated. The anesthesia is a practical stigma; it is a mere means of diagnosis because it accompanies two thirds of the hysterical symptoms, and it has the character of persisting long after the disappearance of the accident. The anesthesia has failed as a stigma in the theoretical sense, as the central character from which the root of the disease springs.

II. We must look more deeply for other phenomena playing the rôle of stigmata. Since hysteria has become a more distinctly mental malady, it is in the mind that we must seek for the stigmata. Scientists had long felt that there was an hysterical mental state. No doubt the versatility, the falsehood, exist in hysteria, and often they are even very amusing. But there are some mental accidents of the neurosis; it is well known that all hystericals have not necessarily made fugues; likewise they have not necessarily all of them that mental accident of falsehood. In reality, one great mental stigma that modern studies have brought into evidence is the mental phenomenon of suggestion. But it is necessary to define this phenomenon exactly, to give a distinct meaning to the word,because some physicians are in the habit of using it in an extremely vague mannor, of comprising under the word all possible phenomena. An idea penetrating into the mind of the hysterical does not seem to conduct itself in him as it usually does in normal minds. The idea seems to be transformed and to become at once another psychological fact, an act or a perception. Other ideas become connected with the first, still with the same intensity and the same transformation into actions and perceptions. These associations are very important, for they determine particular reactions of the subject to such or such excitations. The idea is always, as we have already remarked with regard to somnambulism, a system of images, each of which has different muscular or visceral properties. With the normal man these systems stop one another and do not develop; in suggestion each idea seems to develop to the maximum. But, you may say, this development can also be sometimes effected with us. In these cases the development only takes place through a particular mechanism; an accessory force is added to the idea by the will, the attention, the whole personality; in suggestion you meet with nothing of the kind. In order that there may be suggestion, it is precisely necessary that all those normal causes of development should be wanting, and that the idea should seem to develop to the extreme, without any participation of the will or of the personal consciousness of the subject.

III. Now that you have formed a precise idea of suggestion, you will readily accept an inevitable consequence of this first remark, namely, that suggestion is no longer a commonplace and constant phenomenon; it presents itself only in certain cases and under certain conditions which it is necessary to determine. For instance, it is quite plain that with an insane person in dementia the images are no longer systematized, and that consequently the ideas are no longer either understood or developed. But should we immediately assert that suggestion is continually met in the sanest persons? Despite the affirmations of certain authors, we must confess that we have not succeeded in giving suggestions to people of normal good health. This fact appears to me incontestible, and to speak of suggestion with sane persons, one is obliged to consider quite different facts, effects of education, habits, recollections, beliefs, good will, voluntary docility, etc. They are quite different psychological phenomena. On the other hand, every time that we have established in a person unmistakable suggestibility, we have had no difficulty in demonstrating numerous and evident traces of mental disease. It is the sign of a particular mental disease; it requires that the automatic association of the pychological elements be preserved and that the actual synthesis of the phenomena be altered or reduced, exactly what we find in the hysterical state.

Let us now consider all the patients we clinically regarded as hysterical. I say that you will almost always find in them all the phenomena of suggestion, experimentally and accidentally. Inversely the relation between suggestibility and the hysterical neurosis can be verified by studying the disappearance of suggestion. What is most interesting is that it disappears completely when the disease is cured, or when the disease momentarily disappears.

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Original Articles.

THE CAUSE OF SO-CALLED HABITUAL LATERAL CURVATURE OF THE SPINE.*

BY MAX BOHM, M.D.,

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A PARTIAL statement of a theory concerning the origin of juvenile lateral deformities of the spine has been published by me in this journal [1] which differs considerably from the present conception of the cause of these affections.

During the past half year the theory has been placed upon a firmer basis by the accumulation of a greater number of additional observations upon patients and by further anatomical studies.

The following paper gives briefly *the most important points* of the theory, leaving its thorough description to a more extensive publication in monograph form which will appear soon.

ANATOMICAL PART.

(From the Anatomical Department of the Harvard University Medical School.)

The human spine consists normally of 33 to 34 vertebræ. It is divided into regions in a typical way: 7 cervical, 12 dorsal, 5 lumbar, 5 sacral, and 4 to 5 coccygeal vertebræ. (See diagram 1.)

DEVIATIONS from these normal numerical divisions of the vertebræ may occur in two ways; diagrams 2 and 3 show the character of this so-called "NUMERICAL VARIATION."

Diagram 2 represents a VARIATION IN A CRANIAL DIRECTION; that is to say, all the regional boundaries of the spine are placed higher than normally; the cervico-dorsal boundary is between the sixth and seventh, the lumbo-dorsal boundary between the eighteenth and nineteenth, the lumbo-sacral boundary between the twenty-third and twenty-fourth, the sacro-coccygeal boundary finally between the twenty-eighth and twenty-ninth vertebræ; the thorax has moved upwards, as has likewise the pelvic girdle and lower extremities.

Diagram 3 shows just the opposite conditions: the boundaries are placed lower than normally, the thorax and sacrum have moved downwards; the whole represents A VARIATION IN A CAUDAL DIRECTION.

The short oblique lines on each side of the axial line in the diagrams represent the intervertebral joints. From the eighth to the nineteenth vertebræ these joints show the familiar DORSAL TYPE having articular surfaces lying frontally, whereas from the nineteenth to twenty-fourth vertebræ the joints possess the LUMBAR CHARACTER, *i.e.*, they have surfaces, facing sagittally. Between the twenty-fourth and twenty-fifth vertebræ there is a joint of LUMBO-SACRAL type, *i.e.*, its articular surfaces run diagonally. Between the nineteenth and twentieth vertebræ there is normally a very sudden "ARTICULAR CHANGE," that is, the change from the dorsal to the lumbar joint type. (Diagram 1.)

In a cranial variation of the spine this change takes place one vertebra higher (diagram 2); in a caudal variation one vertebra lower than normally. (Diagram 3.)

Diagrams 2 and 3 are schematic and represent extreme degrees of variation which practically never occur. They indicate, however, the character and tendencies of lesser degrees of variation.

These LESSER DEGREES OF VARIATION lead to the production of those peculiar forms of vertebræ at the regional boundaries, called by the anatomist "TRANSITIONAL VERTEBRÆ" (Uebergangswirbel) which have in part some of the features of one region and in part some of the features of the neighboring region. Such are:

(1) Occipito-cervical vertebræ. These are for instance represented by fusions of the atlas with the occipital bone.

(2) Cervico-dorsal vertebræ. These are anomalous conditions of the seventh or eighth vertebra, in which the seventh has a rib ("cervical rib") or the eighth is associated with an under-developed or rudimentary rib.

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* Read before The Johns Hopkins Medical Society in Baltimore, Nov. 5, 1906.,

[1] A Contribution to the Etiology of Lateral Curvature of the Spine. BOSTON MED. AND SURG. JOUR., vol. cliv, no. 4, 1906.

Recent Researches on the Pathology and Etiology of Juvenile Spinal Deformities. Clinical Meeting of the Massachusetts General Hospital, BOSTON MED. AND SURG. JOUR., vol. cliv, no. 22, 1906.

(3) Lumbo-dorsal vertebræ. These are anomalous conditions of the nineteenth or twentieth vertebra, in which the former loses its ribs or the latter is associated with "lumbar" ribs.

(4) Lumbo-sacral vertebræ. These are anomalous conditions of the twenty-fourth or twenty-fifth vertebra, in which the former is associated with sacral wings or the latter loses them.

(5) Sacro-coccygeal vertebræ. These are anomalous conditions of the twenty-ninth or thirtieth vertebra, where the former loses its lateral masses or the latter is associated with them.

The diagrams differ, furthermore, from nature in that as a rule the spinal regions do not vary in such a regular way as the schematic pictures show, but frequently *one* region shows a greater degree of variation than the others.

Finally both sides of the spine (left and right) frequently vary independently and *asymmetrically*. The latter fact, which interests us especially, is illustrated by diagrams 4, 5 and 6. Diagram 4 shows an *asymmetrical variation* in the lumbo-sacral region; the sacrum begins on the left side with the twenty-fourth vertebra, whereas on the right side with the twenty-fifth vertebra.

In diagram 5 we see the corresponding asymmetrical variation in the dorsal part. The left side of the thorax reaches from the seventh to the eighteenth segment, while the right extends from the eighth to the nineteenth vertebra.

Diagram 6 illustrates an instance of an asymmetrical variation of the "articular change." The articular change in this case takes place between the eighteenth and nineteenth vertebræ on the left and between the nineteenth and twentieth vertebræ on the right.

A beautiful illustration of these conditions is seen in Fig. 11.

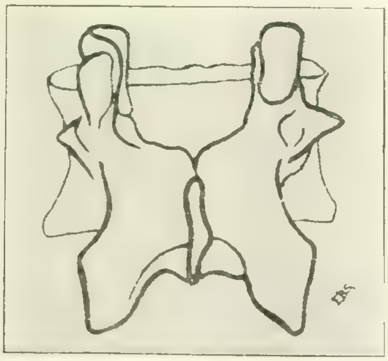

Fig. 11. Asymmetrical lumbo-dorsal articular change.

Fig. 11 is taken from E. B. Smith. Two Rare Vertebral Anomalies, Jour. of Anat. and Phys., Vol. 36, 1902, p. 372.

Diagrams 4 to 6 are also schematic and represent conditions which hardly occur as pure as this in nature. For in nature the asymmetry is never as marked as in the diagrams; but usually both sides of the spine vary and an asymmetry exists only in the sense that one side varies more markedly than the other.

The numerical variation of the spine offers so many interesting points that in all countries embryologists, anatomists and anthropologists have devoted a great deal of study to it.

We owe to embryological researches (Rosenberg, Bardeen) the knowledge that variations of the *caudal part* of the spine may be the expression of a deep developmental disorder, namely, of a faulty attachment of the total lower extremity (pelvis and free extremity) to the trunk, *i. e.*, the spine. An attachment of the pelvis higher than normal results in a shortening, lower than normal in a lengthening, of the pre-sacral spine.

As to the origin of the numerical variation of the *cranial* part of the spine, nothing definite is known, just as the genesis of the typical differentiation at this part of the spine is obscure.

Some anatomists explain the numerical variation in a very interesting way, connecting it with the phylogenetic development of the human race. The father of this theory, the anatomist Emil Rosenberg, considers the normal differentiation of the spine as typical for the present phylogenetic state of mankind, whereas a variation in caudal direction means a lower state, an atavism, and a variation in cranial direction signifies a step into the future, an epigonism.

The present paper shows how great a *clinical* importance this variation may have as an etiological factor in spinal deformities.

HOW CAN THE NUMERICAL VARIATIONS OF THE SPINE LEAD TO LATERAL DEFORMITIES?

(1) Suppose a child is born with a spine like that shown in diagram 4. Free extremity (*a*), ileum (*i*) and sacral wings are attached to the spine one vertebra higher on the left than on the right. Thus the pedestal of the free (pre-sacral) spine is, so to speak, asymmetrical. As soon as the child starts in to walk, these asymmetrical conditions will deform the vertebral bodies of the sacrum and chiefly of the first sacral vertebra. Thus the foundation of the free spine becomes oblique and the latter will have to perform its functions in an abnormal position; the tendency of the body to compensate is added and thus we finally find in a certain period of life a deformed spine as the expression of a development which has been since the start on a wrong track. In this case (diagram 4) the *primary curve* would be located in the LUMBO-SACRAL REGION; the convexity of the lumbar curve would be on the left side.

(2) Diagram 5 shows conditions in which on one and the same vertebra ribs of different character are attached. For instance, on the eighth vertebra, which is normally the first thoracic, we find on the left side the second, on the right side the first, rib inserted. A comparison of normal first and second ribs shows a marked difference between the two. The first is short, strong and little curved, the second is long, nearly twice as long as the first, slender and much curved. Thus we have in our diagram 5, corresponding to the eighth vertebra, a thoracic ring which is formed in front by the sternum, behind by the spine, and whose sides, the ribs, are markedly asymmetrical.

This asymmetry, only slightly developed in the embryo, increases in later life (see page 604 *ff.*) and causes, in connection with the tendency of the body to restore the balance, lateral deviation of the spine, which is the most movable part in the above mentioned thoracic ring. In this case (diagram 5) the *primary curve* would involve the *cervico-dorsal region* and its convexity would be on the right.

(3) From anatomical studies it is not quite certain whether a variation of the " ARTICULAR CHANGE " as shown in Fig. 6 may lead to lateral deformities. I believe that it may cause lateral deformities of slight degree, but it does not produce those with structural change in the vertebral bodies. However, the variation of the " articular change " may lead in another way to lateral deformities, namely, in a way as illustrated in diagram 7. We have here on the right between the eighteenth and nineteenth vertebræ an intervertebral joint of typical lumbar character, the " articular change " thus being one vertebra too high. Whereas on the left side the inferior articular process of the eighteenth vertebra is still dorsal; but the corresponding superior articular process of the nineteenth vertebra is lumbar. Thus there is on the left side between eighteenth and nineteenth vertebræ on account of a lacking conformity of the articular processes *no* good joint formation at all. The superior process of the nineteenth does not support the inferior process of the eighteenth vertebra sufficiently and the spine above the former will fall over to the left side.

This, and similar disturbances in the formation of the joints, which undergo the " articular change," lead to more or less sharp-angled lateral deformities in the LUMBO-DORSAL REGION with the apex in the abnormal joint. In diagram 7 the lateral deformity would be very sharp-angled (" *lumbo-dorsale Abknickung* ") and the angle would open to the left side; the convexity would be on the right side.

(4) Combinations of the three mentioned causes of lateral deformities may lead to combined deformities.

The above description of the character of the numerical variation and of its relations to lateral deformities of the spine represents a short, by no means complete, and somewhat schematic summary of a longer series of studies which have been made on the collection of 54 spines showing numerical variation, collected by Prof. Thomas Dwight, director of the anatomical department of Harvard University Medical School.[2] It is impossible to give here a full account of these studies, but I would like to illustrate by means of three specimens of the Dwight collection. the morphological character of some forms of numerical variation, and the way in which they produced lateral deformities. These types[3] are shown in Table II, Figs. 9, 10, 12, 13.

The character of the variation in Fig. 9 resembles the one represented in diagram 4 with the sole difference, that in Fig. 9 the sacrum begins on both sides one vertebra lower. It will be noted in Fig. 9 that the spine shows A PRIMARY LUMBO-SACRAL CURVE to the left and that the twenty-fifth and twenty-sixth vertebræ, that is the lumbo-sacral and first sacral vertebræ, show a special deformity of their bodies.

Fig. 10. This spine corresponds very nearly to diagram 5. We find attached to the seventh vertebra on the left side a markedly developed cervical rib, which is nearly a first dorsal in character, while on the right side we see a less developed cervical rib. The eighth vertebra has on the right a rib of transitional character, resembling in part the normal first, in part the normal second rib; the same vertebra has on the left side a rib also of transitional character, but resembling in its features and sternal attachment much more the normal second rib. The spine shows A DORSAL KYPHO-SCOLIOSIS TO THE RIGHT; and the chest with a prominence posterior on the right and anterior on the left is typical of the conditions we find clinically in some cases of " lateral curvature."

Figs. 13 and 14, illustrate spine No. 9379–34 from the Dwight collection. This spine shows a fusion of the last three lumbar and the first sacral vertebræ. However, what especially interests us here is THE VARIATION OF THE " ARTICULAR CHANGE." This is best seen in an x-ray taken from the lumbo-dorsal region of this specimen. (Table VII, Fig. 33.) The nineteenth vertebra has rudimentary ribs.

Between the eighteenth and nineteenth vertebræ there is on both sides a joint of neither lumbar nor dorsal but of transitional character. (The dorsal joint character may be observed in the joints above, the lumbar type in the joints below the abnormal one. Only the lumbar joints show in the x-ray the space between the articular processes.)

The inferior processes of the eighteenth vertebra on both sides possess chiefly dorsal character, while the superior processes of the nineteenth vertebra only in part show a corresponding type. This is especially marked on the left, where the superior articular process of the nineteenth vertebra for the most part shows lumbar character. These conditions correspond somewhat with those in diagram 7. Thus we find the left inferior process of the eighteenth vertebra articulating abnormally with the corresponding superior process of the nineteenth, so that it lies partly in front of it. This lack of conformity between the articular processes in this case has produced a sharp angled LUMBO-DORSAL DEVIATION in a lateral, posterior and rotary direction as is to be seen in Table II, Figs. 12 and 13. Fig. 33 also shows how the curve starts directly from the abnormal joint.

These three specimens of the Dwight collection may suffice to show that certain types of numerical variation may lead to certain distinct lateral deformities of the spine, and thus gain PATHOLOGICAL SIGNIFICANCE.

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[2] Dwight: Description of the Human Spines showing Numerical Variation, in the Warren Museum of the Harvard Medical School. Memoirs of the Boston Society of Natural History, vol. v, 1901. An abstract appeared in the Anatom. Anzeiger, Bd. 15, 1901.

Dwight: Numerical Variation in the Human Spine with a Statement Concerning Priority. Anatom. Anzeiger, Bd. xxviii, no. 1 und 2, 1906

[3] No. 9379–15, 9379–53, 9379–34, in the Dwight Collection.

It may be emphasized here, that about *one third of the spines* of the Dwight collection show these *pathological types* of numerical variation, above determined, and consistent with them mostly slight lateral deformities *with* structural changes in the vertebral bodies.

Not only for the study of the relation between lateral deformities and numerical variation but also in another way the Dwight collection has proved to be of the greatest value for this research. It was used as the basis for answering the following questions:

(1) Do THE TWO SEXES differ in regard to the type of numerical variation?

(2) Does the variation affect the RIGHT AND LEFT SIDES of the spine in different ways?

After certain spines *f. i.* from negroes, of uncertain sex or identity were ruled out, 41 spines remained, 24 male and 17 female. Twenty-three spines varied in a cranial, 18 in a caudal direction.

In answer to the first question the following table shows the incidence of the two kinds of variation in the two sexes:

	Male.	Female.	Total.
Variation in the cranial direction,	8	15	23
Variation in the caudal direction,	16	2	18
Total,	24	17	41

In answer to the second question the following may be said: Among the 41 spines 7 show a symmetrical and 34 an asymmetrical variation. Among the latter 18 vary in a cranial, 16 in a caudal direction. These 34 spines with asymmetrical variation were examined with reference to whether the left or right side varied more in the direction of the total variation.

The following table gives the result. In the column X are registered those aberrant forms of variation in which the single regions vary irregularly as to the side involved and which cannot be considered here.

Greater Variation on:	Left Side.	Right Side.	X.	Total.
Variation in the cranial direction,	12	3	3	18
Variation in the caudal direction,	3	11	2	16
Total,				34

In the light of these observations the questions propounded above can be answered as follows:

(1) THE FEMALE SPINE HAS A MARKED TENDENCY TO VARY IN A CRANIAL, WHILE THE MALE SPINE HAS A STRONG TENDENCY TO VARY IN A CAUDAL DIRECTION.

(2) THE LEFT SIDE OF THE SPINE HAS A STRONG INCLINATION TO VARY IN A CRANIAL, THE RIGHT SIDE TO VARY IN A CAUDAL DIRECTION.

Thus: Considering the spine of both sexes together, THE LEFT SIDE SHOWS IN ITS VARIATION THE SAME RELATIONSHIP TO THE RIGHT SIDE AS DOES THE FEMALE SPINE TO THE MALE SPINE.

The importance of these findings for our subject will be shown later.

Clinical Part.

(From the Orthopedic Department of the Massachusetts General Hospital.)

If it has been demonstrated in the anatomical part that the peculiar developmental error which leads to numerical variation of the spine may in certain distinct cases lead at the same time to lateral deformities, in the clinical part we have to reverse the question in the following way:

Do cases of juvenile lateral deformities of the spine, such as, are called commonly "lateral curvature," show the anomalies above described so frequently that an undoubted causal connection between them becomes apparent? Do cases of "lateral curvature" show numerical variations at the seat of the primary curve, and represent these variations those "pathological" types we would expect to find there in view of the results above detailed in the anatomical part?

From Jan. 1 to Oct. 1, 1906, I have studied 24 cases of "lateral curvature." In all of these cases an origin from poliomyelitis, rickets, empyema or purely static conditions was carefully ruled out. In accordance with exact measurements the cases were classified into the following groups:

(1) Lumbo-sacral scoliosis.

(2) Cervico-dorsal scoliosis.

(3) Lumbo-dorsal scoliosis (including the "total" scoliosis).

(4) Combined. s-scoliosis; *i. e.*, spine in its parts parts equally deformed.

The measurements were made in the medico-mechanical department of this hospital by means of the Zander apparatuses for back and chest measurement and of a little instrument designed for measuring the back in forward-bending, which is an imitation of Beely's cyrtometer.

Table IV, Figs. 18–21, show the clinical types of the curvatures, under which the cases were classified. The photographs of the patients, from which the measurements were taken, Table III, Figs. 14–17, will help others to understand this classification.

Röntgenological Part.

(From the X-Ray Laboratory of the Massachusetts General Hospital.)

The spine of each patient was thoroughly examined by means of x-rays. The technique will be described here specially for the benefit of other workers. In the first place 3 plates of the spine were taken with the patient lying down: (1) of the dorsal spine and thorax with the neighboring lower cervical and upper lumbar parts; (2) of the lumbar spine with the neighboring lower dorsal and sacral region; (3) of the cervical spine. In order to count the cervical spine it is necessary to show the atlas in the picture. This can be attained by x-raying the neck with the patient's head turned to one side.

If we succeed in getting thus clear plates they may be sufficient to form a composite picture of the whole spine. But in many cases it is necessary to take besides these gross pictures detail pictures of certain interesting places with the compression cylinder. The piecing together of the detail pictures has to be done in strict comparison with the gross pictures. Finally a lateral picture of the occipito-cervical region must be taken. This picture is of special importance in cases of the cervico-dorsal group.

In the way just described *all the twenty-four cases* were examined,[4] and an exact knowledge of the numerical and morphological conditions of the spine has thus been gained. Four spines may be shown here as types. Table VI, Figs. 26-29. They are taken from the patients, whose measurements are shown in Table IV, Figs. 18-21; compare also photographs Table III, Figs. 14-17.

The results of the clinical and Röntgenographic examinations are briefly given in the following table:

The table shows the following: Three cases,

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[4] In few cases cervical spine and occipito cervical region has been omitted.

No.	Race.	Sex.	Age.	Age at which deform was first noted.	Clinical diagnosis	Morphological and numerical condition of spine	Anatomical diagnosis	Illustrations.
I.								
1	white	female	15	12 years	left lumbo-sacral scoliosis.	7 c. 12 d., last ribs overdeveloped, 5 l., 1 ls., 4 s., 1 sco.	Asymmetrical variation in a caudal direction	Fig. 14 Fig. 18 Figs. 22 and 26 Diag. 8
2	white	female	17	16 years	left lumbo-sacral scoliosis.	7 c. 12 d., last ribs overdeveloped, 1 ld., 5 l., 1 ls., 4 s. Pelvic-halves are of marked primary asymmetry	Asymmetrical variation in a caudal direction	
3	white	female	38	unknown	left lumbo-sacral scoliosis	12 d. 6 l.	Variation	
4	white	female orphan	18	ever since "she can remember"	right lumbo-sacral scoliosis	12 d., 2. l Fusion of 3 last lumbar and first sacral vertebræ. Open canalis sacralis. Spina bifida occulta	Congenital fusion of vertebræ	
5	white	male	12	7 years (uncertain)	left lumbo-sacral scoliosis.	12 d. 5 l., First sacral vertebra shows signs of imperfect development, for instance ununited arch	Congenital lack of vertebral development	
6	black	male	10	18 months	left lumbo-sacral scoliosis	7 c., 12 d., 5 l. First sacral vertebra has exactly the same appearance as in Case V.	Same	
II.								
7	white	female	21	14 years	right cervico-dorsal scoliosis.	6 c., 1 c.d, 11 d., 5 l., 1 ls. On the eighth vertebra there are ribs attached, from which the left resembles more the normal second, the right more the normal first rib	Asymmetrical variation in a cranial direction	
8	white	female	20	16 years	right cervico-dorsal scoliosis.	6 c., 1 cd., 12 d. Last ribs rudimentary, 5 l. The character of the ribs attached to the eighth vertebra are much as in the former case	Asymmetrical variation in a cranial direction	Fig. 15 Fig. 19 Figs. 23 and 27
9	white	female	16	13 years	right cervico-dorsal scoliosis	Atlas fused to occiput, 6 c., 1 cd., 11 d., 5 l., 1 ls., *i. e.*, incompletely sacralized. Ribs attached to eighth vertebra are rudimentary, on the right more than on the left	Asymmetrical variation in a caudal direction	
10	white	female	15	14 years	right cervico-dorsal scoliosis.	6 c., 1 cd., 12 d. Last ribs rudimentary, 4 l., 1 ls., Ribs attached to eighth vertebra are *both* in shape more like normal second ribs.	Symmetrical variation in a cranial direction	
11	white	female	16	11 years	right cervico-dorsal scoliosis.	7 c., third and fourth improperly developed, 1 cd., 11 d., 5 l. The right rib of the eighth vertebra is rudimentary.	Asymmetrical variation in a caudal direction	
12	white[1]	male	13	11 years	right cervico-dorsal scoliosis.	Atlas fused, 6 c., 12 d., 5 l., 5 s., 1 s co. Ribs attached to eighth vertebra are *both* somewhat rudimentary	Symmetrical variation in a caudal direction	Fig. 30 Table VII
13	white	female	13	12 years	right cervico-dorsal scoliosis.	Atlas (?) 6 c., 1 cd., 11 d., Last ribs overdeveloped, 5 l., 1 ls. The left rib of the eighth vertebra is rudimentary.	Asymmetrical variation in a caudal direction	Fig. 31 Table VII
14	white	female	20	18 years	left cervico-dorsal scoliosis	Atlas fused, 6 c., 1 cd., 11 d., 5 l. The left rib of the eighth vertebra is rudimentary	Same	

[1] There is a decided heredity in this patient's history: Two brothers of his, one sister and one aunt of his mother have "lateral curvature" of the spine.

No.	Race.	Sex.	Age.	Age at which deform. was first noted.	Clinical diagnosis.	Morphological and numerical conditions of spine.	Anatomical diagnosis.	Illustrations.
III.								
15	white	female	15	14 years	lumbo dorsal scoliosis. Convexity right	7 c., 11 d., 1 ld., 5 l. Articular change between eighteenth and nineteenth vertebræ: right complete, left incomplete	Asymmetrical variation in a cranial direction	
16	white	female	16	15 years	lumbo dorsal scoliosis. Convexity left	7 c., 11 d., 5 l., 1 ls., (incompletely sacralized). Articular change between eighteenth and nineteenth vertebræ, left complete, right incomplete	Asymmetrical variation in a cranial direction	Fig. 16 Fig. 20 Figs. 24 and 28
17	white	female	16	14 years	lumbo-dorsal scoliosis, but impure	7 c., 11 d., 1 ld., 5 l. The ninth dorsal vertebra is a semi-vertebra; artic. change (?)	Variation in a cranial direction and congenital lack of vertebral development	
18	white	female	16	14 years	lumbo-dorsal scoliosis. Convexity left	Atlas fused, 6 c., 12 d., last ribs overdeveloped; 1 ls. Articular change between nineteenth and twentieth vertebræ: left complete, right incomplete	Asymmetrical variation in a caudal direction	
19	white[2]	female	13	13 years	lumbo-dorsal scoliosis. Convexity left	(?) c., 11 d., 1 dl., 5 l. Art. change above dl. vert.; left complete, right incomplete	Asymmetrical variation in a cranial (?) direction	
20	white	female	16	12 years	lumbo-dorsal scoliosis. Convexity right	Atlas fused, 6 c., 1 cd. (?), 11 d., 5 l. Articular change between nineteenth and twentieth vertebræ: right complete, left incomplete	Asymmetrical variation in a caudal direction	
21	white	female	18	17 years	lumbo-dorsal scoliosis. Convexity right	(?) c., 11 d., 1 dl., 5 l., 6s. Articular change see Fig. 32, Table VII	Asymmetrical variation, cranial (?)	
IV.								
22	white	female	23	17 years	Combined s-scoliosis. left lumbar, right dorsal.	6 c., 1 cd., 11 d., 1 ld., 4 l., 1 ls.	Asymmetrical variation in a cranial direction	Fig. 17 Fig. 21 Figs. 25 and 29
23	white	female	22	14 years	Combined s-scoliosis, left lumbar, right dorsal.	7 c., 12 d., last ribs rudimentary, 4 l, 1 ls. Ribs attached to eighth vertebra are both more of the character of the normal second rib	Symmetrical variation in a cranial direction	
24	white	female	34	Patient is not conscious of having a scoliosis	Combined s.-scoliosis, left lumbar, right dorsal	7 c., 1 cd., 11 d., 5 l., 1 ls. The right rib of the eighth vertebra is rudimentary	Asymmetrical variation in a caudal direction.	

Remarks. The following abbreviations are used in this table: c = cervical, d = dorsal, l = lumbar, s = sacral, co = coccygeal, cd = cervico-dorsal, etc.

[2] The deformity in this case is hereditary. The mother of the patient, as I could convince myself, has a scoliosis of the same type.

Nos. 4, 5 and 6, belong apparently clinically as well as anatomatically to the class of scolioses, which at present are called "congenital." They do *not* show a numerical variation of the spine.

A fourth case, No. 3, does not allow a proper clinical or anatomical classification.

The other 20 cases form clinically a separate group, inasmuch as the onset of the deformity in these cases takes place in about the first half of the second decade of life. They belong to that large class of idiopathic scolioses, which we mostly see in schoolgirls and which is, according to the present conception, usually considered as due to faulty attitude, and therefore called habitual scoliosis. In all these 20 cases we find a numerical variation of the spine present. According to Bardeen's[5] recent statistical researches 15% to 16% of all human beings show one or the other numerical variation of the spine. The extreme frequency of variation in these 20 scoliotic spines suggests some relation between "habitual" lateral curvature and numerical variation of the spine.

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[5] C. R. Bardeen: Numerical Vertebral Variation in the Human Adult and Embryo. Anatom. Anzeiger, Bd. XXV, Jena, 1904

The x-rays show furthermore in 16 out of these 20 cases the chief variation at the primary seat of the scoliosis, and just those "pathological" types of numerical variation which we would have expected to see in view of the results obtained from our anatomical studies.

Thus we have to answer the question which we put at the beginning of the clinical part, in regard to these 16 cases, in the affirmative.

These facts compel us to consider *in these 16 cases of "habitual" lateral curvature* (Nos. 1, 2, 7, 8, 9, 11, 13, 14, 15, 16, 18, 19, 20, 21, 22, 24) *that the variation found is the cause of the lateral deformity present.*

In the face of this logical conclusion all theoretical objections must take a second place.

There may be one chief objection based upon the following considerations which naturally come forward: as the table shows, the deformity in the 20 cases of "habitual" scoliosis first becomes noticeable usually between the tenth and sixteenth years or, on the average, at about fourteen years; but the cause, according to this theory, is a congenital one.

This seems to be inconsistent with the truth of the theory if we accept the clinical dogma that congenital deformities must show directly after birth.

If we insist upon the correctness of our x-ray findings, and upon the truth of our conclusions, this dogma must be wrong. And, indeed, it is wrong as to spinal deformities.

If we compare spine and chest of a new-born child with those of an individual at the time of the puberty, we shall come to the following conclusions:

The spine and chest at the time of birth are as, to their form and structure, to be regarded as unfinished. They undergo, during their development from birth to puberty, not only marked quantitative but also qualitative changes. Besides the disproportional longitudinal growth of the lumbar spine (Aeby, Moser and others) and the fixation of the normal lumbar curve, both of which physiological changes take place chiefly in the second decade of life, there are the following points of special interest for our present question:

(1) While in the embryo and in early childhood the chest grows chiefly in a sagittal direction, it extends chiefly in a frontal diameter at a later period. Out of the thorax of the child, the cross-section of which is heart-shaped, develops the chest of the man, the cross-section of which is bean-shaped.[6]

(2) The intervertebral joints in embryonic life and in early childhood have a uniform character which is of the dorsal type (Rosenberg). It is only in later life that the lumbar joints assume their definite character by turning their articular surfaces inwards. Consequently the "*articular change*" *does not develop* until this late period, which is about the beginning of the second decade.[7]

Clinical symptoms which are based upon abnormalities in this development, especially in the frontal growth of the ribs, and in the articular change, cannot possibly manifest themselves before the proper physiological conditions are present to allow of their development, *i. e.*, the first half of the second decade of life.

Since, indeed, in our 20 cases the deformity begins to manifest itself at this period of life, the apparent inconsistency referred to is not only explained but becomes an argument in favor of the theory of a causal connection between "habitual lateral curvature" and "numerical variation" of the spine.

Still other points may be urged in favor of the theory. Long standing questions in researches upon scoliosis are the following:

(1) What is the reason for the more frequent occurrence of "habitual lateral curvature" in the female sex?

(2) Why does the lumbar curve deviate usually with its convexity to the left, and why the dorsal curve mostly to the right side?

The first question cannot yet be answered by this theory. For according to anatomical statistics, numerical variation of the spine is apparently more frequent among men than women. But it has been shown (page 601) that the female and the male spines have different tendencies in their variations, and it is likely that in the future in some way this difference in the spines of the the two sexes may lead to a satisfactory answer to the first question referred to above.

The fact referred to in the second question stands in entire harmony with the theory here advanced. The description above given of the genesis of the primary lumbar and of the primary dorsal curve makes it clear in general that:

(1) The lumbar curve with its convexity will lie on the same side on which the ileum and the lumbo-sacral boundary are placed higher. (Compare diagram 4.)

(2) The dorsal curve with its convexity will lie opposite the side on which the ribs are longer, *i. e.*, opposite the side on which the cervico-dorsal boundary is moved up. (Compare diagram 5.)

These rules are *not* without exceptions, and no one will be surprised at this who considers that in the end the lateral deformity is the result of a developmental disorder of which the "numerical variation" of the spine may be only *one* sign.

Let us combine these rules with our findings described above: viz., that the left side has a pronounced tendency to vary in cranial direction, to move upwards. Thus we would easily understand why so frequently we find in "habitual lateral curvature" a deviation of the lumbar curve to the left, and of the dorsal curve to the right side.

To sum up all the arguments: The anatomical studies teach us that certain "pathological"

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[6] Hueter: Die Formentwickelung am Skelett des menschlichen Thorax. Leipzig, 1865.

[7] Merkel: Über den Bau der Lendenwirbelsäule. Archiv fur Anatomie und Entwickelungsgeschichte, Leipzig, 1877.

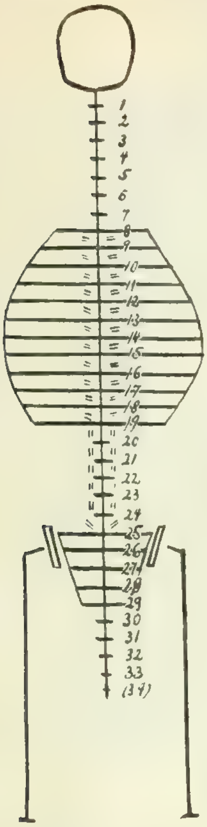


Fig. 1. Normal numerical conditions of the human spine.

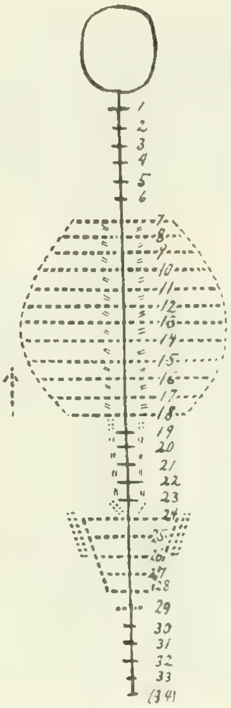


Fig. 2. Variation in a cranial direction.

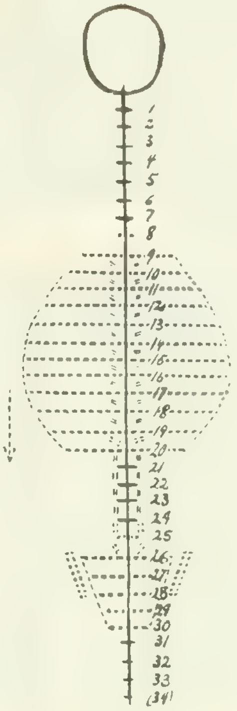


Fig. 3. Variation in a caudal direction.

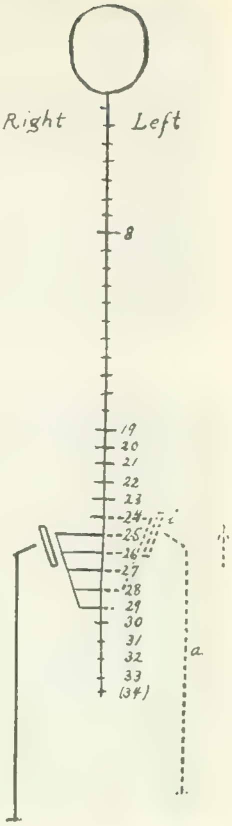


Fig. 4. Asymmetrical (cranial) variation of lumbo-sacral region.

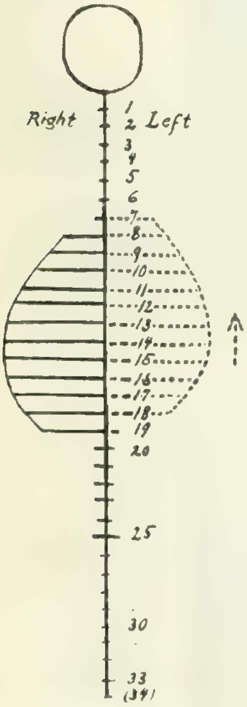


Fig. 5. Asymmetrical (cranial) variation of cervico-dorsal region.

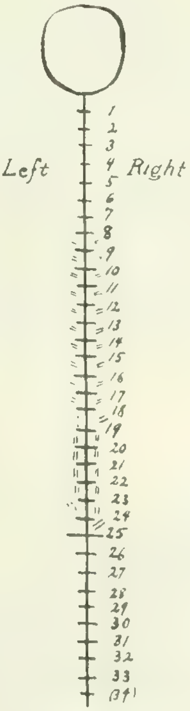


Fig. 6. Intervertebral joints in asymmetrical variation in cranial direction.

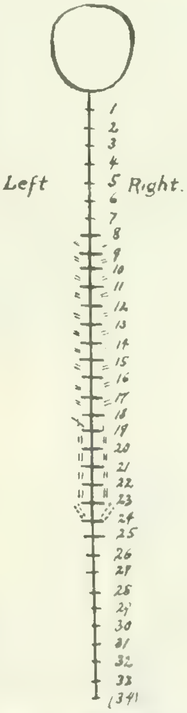


Fig. 7. Incomplete lumbo-dorsal articular change in variation in cranial direction.

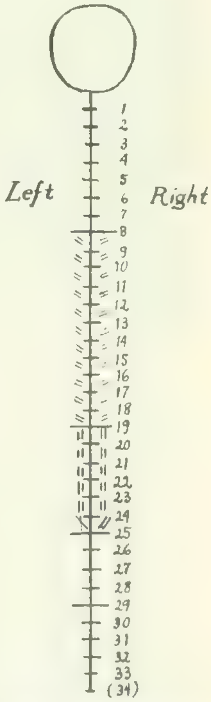


Fig. 8. Incomplete lumbo-sacral articular change in variation in caudal direction.

TABLE I.

Diagrams showing different kinds of numerical variation of the spine.

Diagrams 1–5 correspond to a front view, diagrams 6–8 to a back view of the spine.

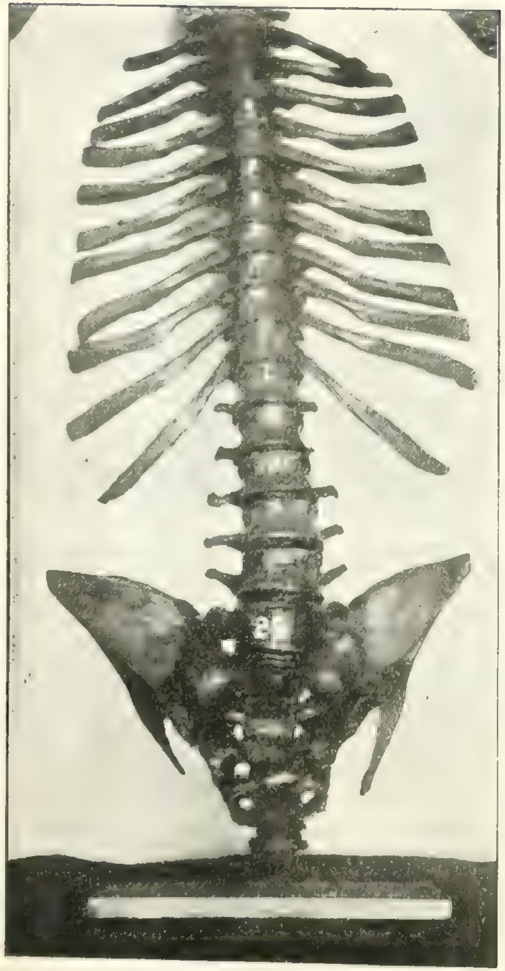


Fig. 9. Lumbo-sacral (caudal) variation and lumbo-sacral scoliosis.

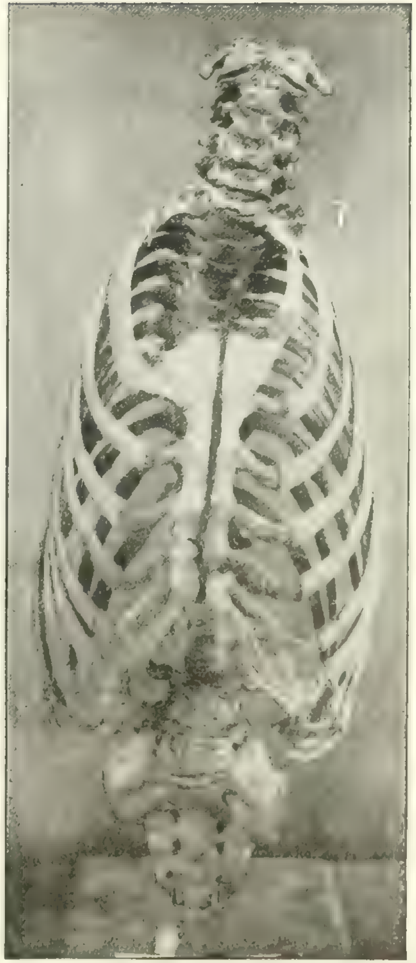
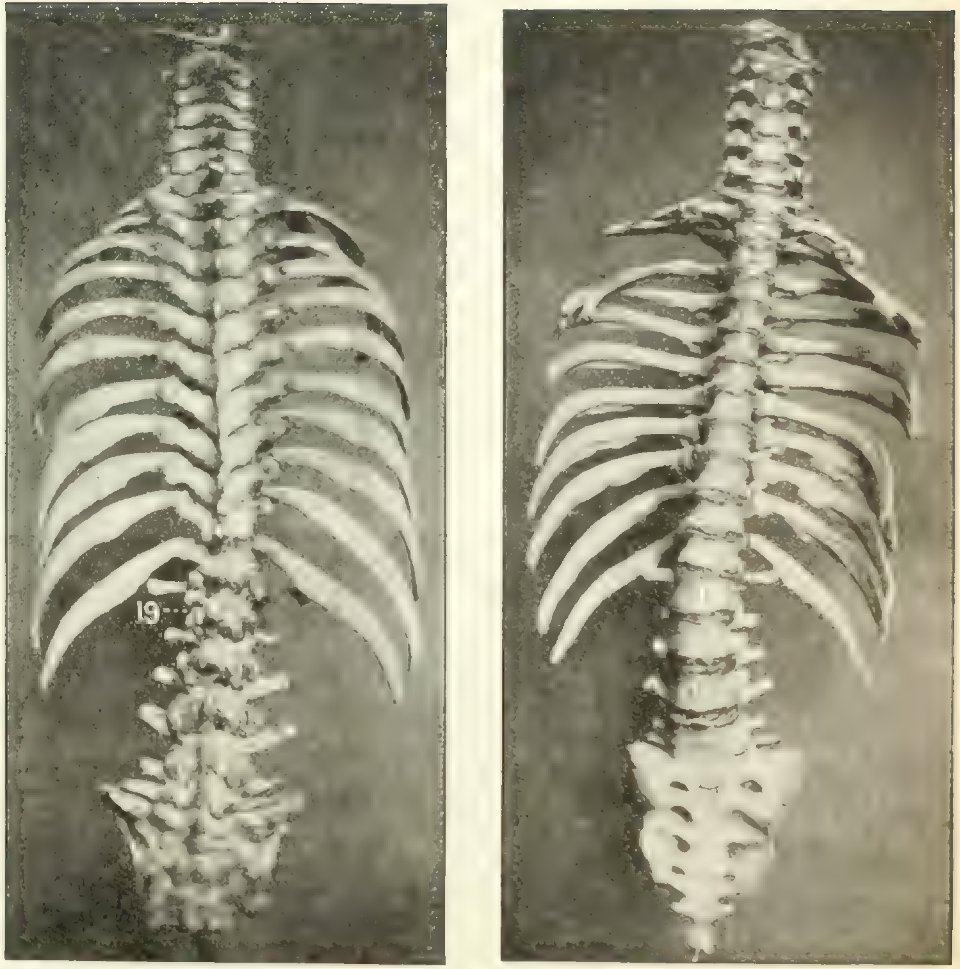


Fig. 10. Cervico-dorsal (cranial) variation and cervico-dorsal scoliosis.



Figs. 12 and 13. Lumbo-dorsal (cranial) variation and lumbo-dorsal scoliosis, see also X-ray of this spine, Table VII, Fig. 33.

TABLE II.

Spines showing certain types of numerical variation consistent with the lateral deformity present

From the Dwight Collection in the Warren Museum of Harvard University Medical School

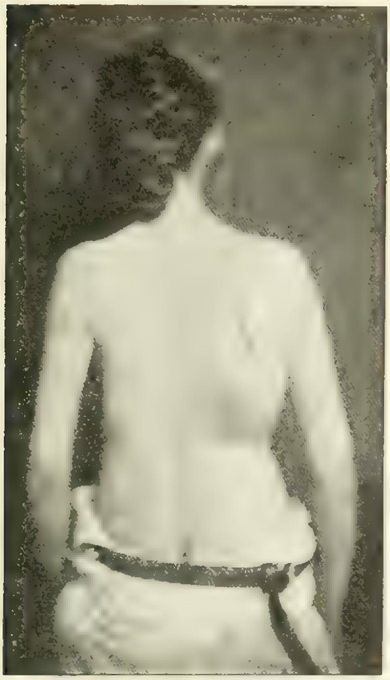


Fig. 14. Lumbo-sacral scoliosis. Case 1.

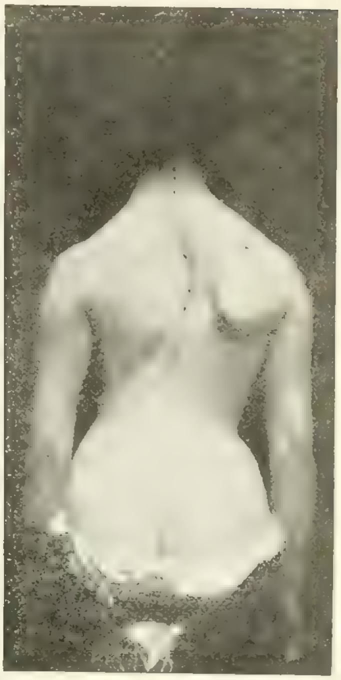


Fig. 15. Cervico-dorsal scoliosis. Case 8.

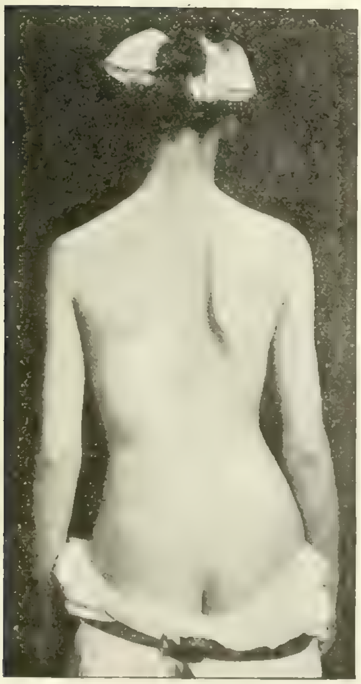


Fig. 16. Lumbo-dorsal scoliosis. Case 16.

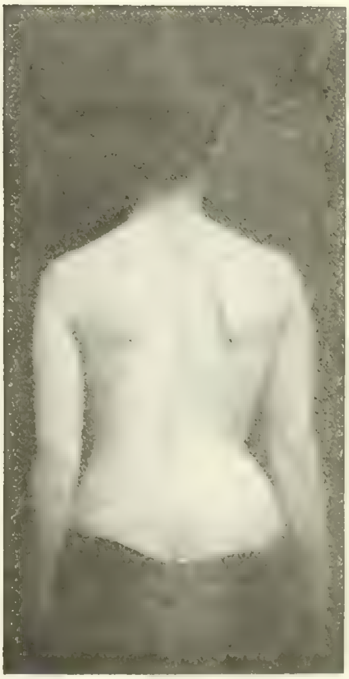


Fig. 17. Combined S—scoliosis. Case 22.

TABLE III.

Photographs from patients, whose measurements are given in Table IV.

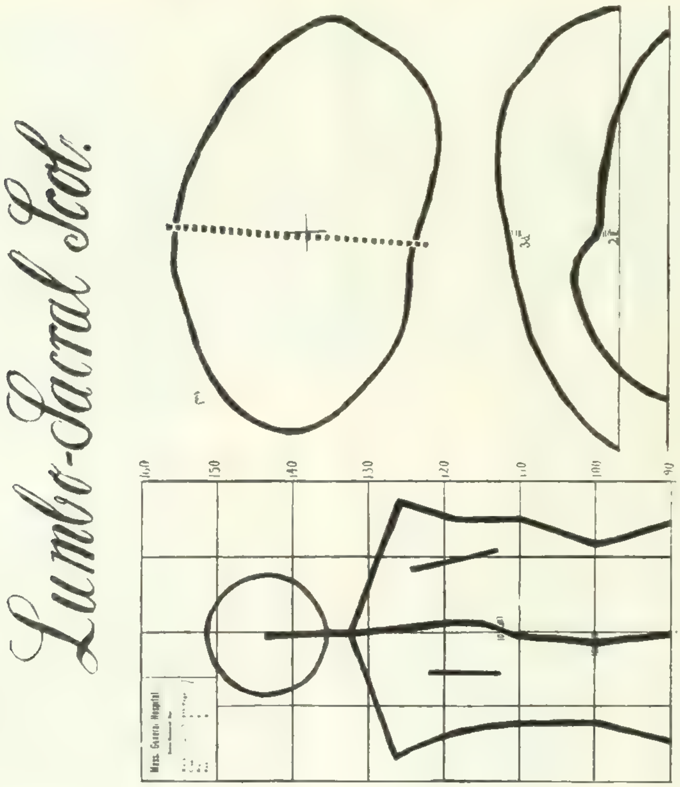


Fig. 18. From Case 1.

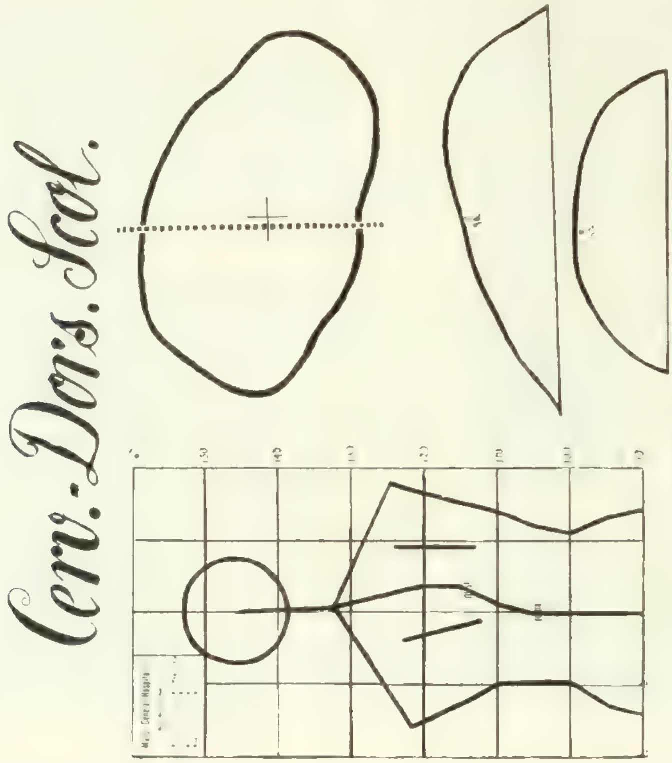


Fig. 19. From Case 8.

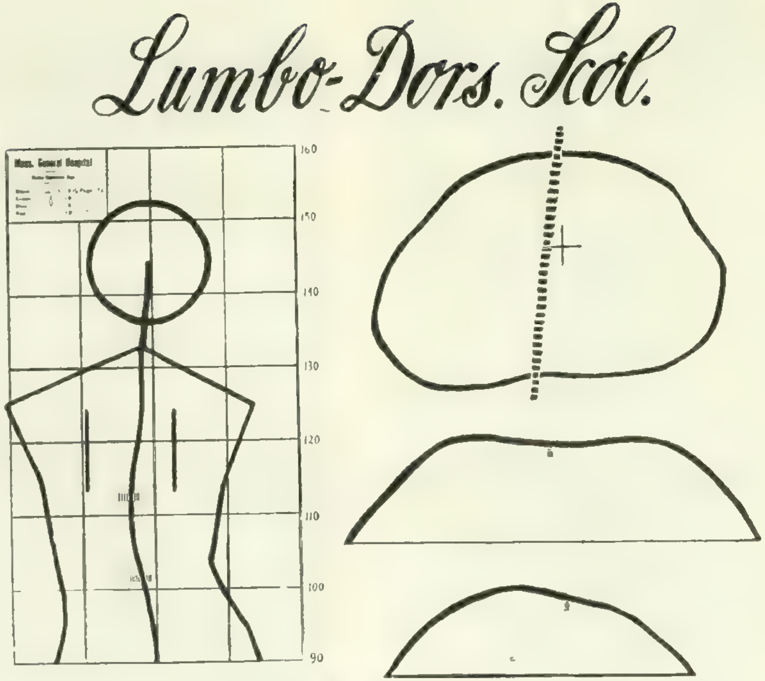


Fig. 20. From Case 16.

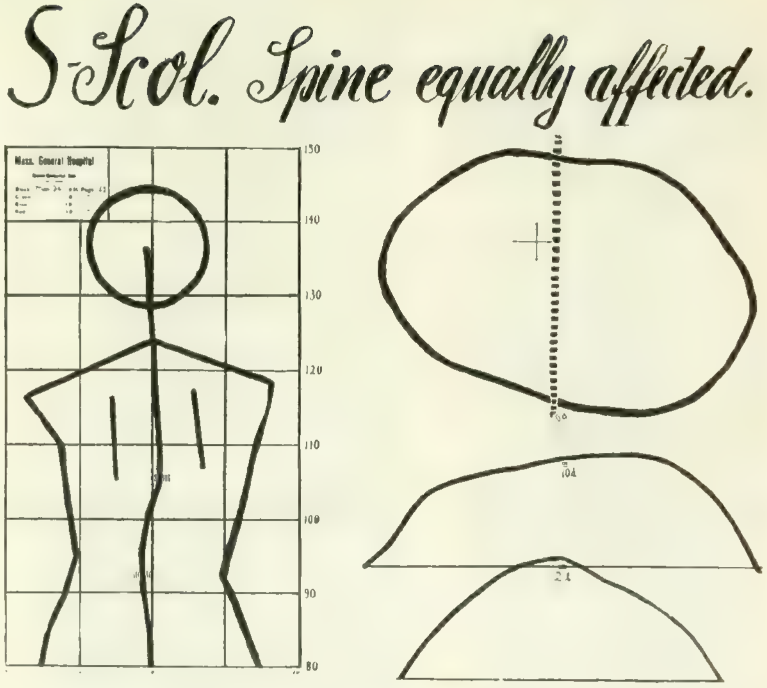


Fig. 21. From Case 22.

TABLE IV.

Measurements illustrating 4 different types of juvenile, so-called "habitual" scoliosis.

In the measurements are seen:

(1) The back, in frontal view showing the outlines of the body, the line of the spinous processes, the position of the head, the basis of the shoulder blade. This picture is taken by the Zander apparatus for back measurement.

(2) The chest circumference: the cross line in this picture represents the connection of the spinous process with the middle of the sternum. This picture is taken by the Zander apparatus for chest measurement.

(3) The upper part of the back, corresponding to the lower third of the dorsal spine, in forward bending.

(4) The lower part of the back, corresponding to the middle of the lumbar spine, in forward bending.

The latter two measurements are taken by a little instrument which is an imitation of Beely's cyrtometer.

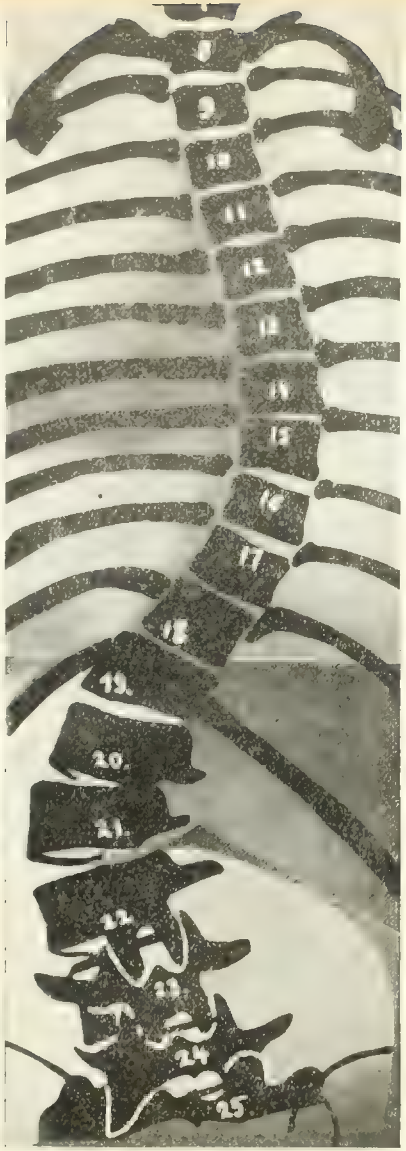


FIG. 22. Compaire Fig. 26. 19th vert. has overdeveloped ribs; 25th vert. shows in its extended transverse processus the assuming of lumbar character. *Variation in a caudal direction.* Conditions of intervertebral joints see diagram 8. From Case 1.

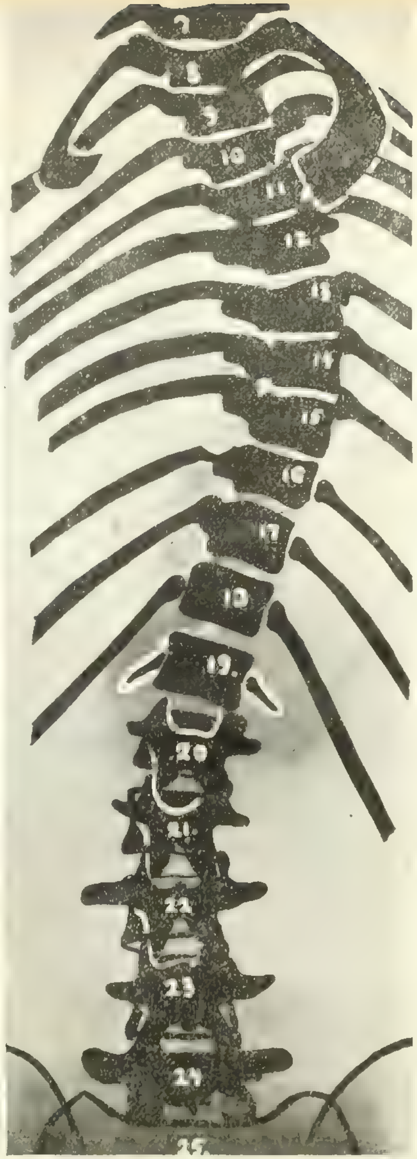


FIG. 23. Compaire Fig 27. 7th vert has "cervical ribs", 19th vert bears rudimentary ribs Lumbar spine normal *Variation in a cranial direction.* 8th vertebra has on the left a rib, which in its shape and curve resembles a second rib, while the rib on the right in its shape and curve is almost 'a typical first one. From Case 8.

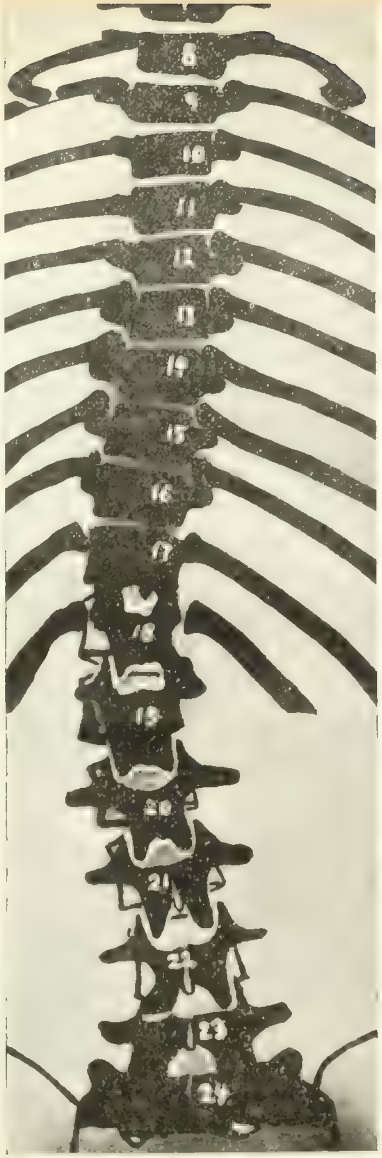


FIG. 24 Compaire Fig 28 19th vert does *not* bear ribs 24th vert is partly sacralized *Variation in a cranial direction* Lumbo-dorsal articular change takes place *above* the 19th vert completely on the left side, in an incomplete and transitional manner on the right side. From Case 16.

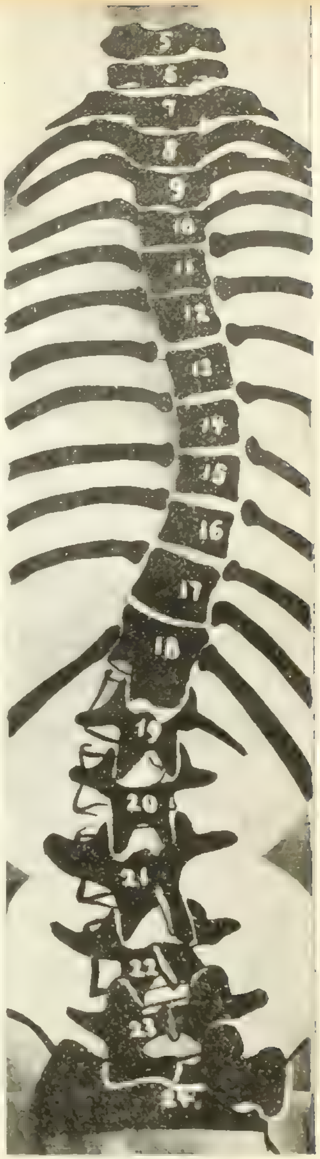


FIG. 25 Compaire Fig 29 7th vert bears "cervical ribs", 19th vert has a rudimentary rib on its right side, none on the left 24th vert is sacralized on the left, while the right side is still of lumbar character. *Variation in a cranial direction* Intervertebral joint between 23d and 24th vert is on the left side sacral, *i. e.*, fused, on the right side lumbo-sacral

Ribs attached to the 8th vert show the assuming of the character of the normal second ribs, on the left more than on the right (The X ray which shows these conditions is not pub-

TABLE V. *Diagrams made from the original x-rays shown in Table VI*

FIG. 26. Lumbo-sacral scoliosis. From Case 1.

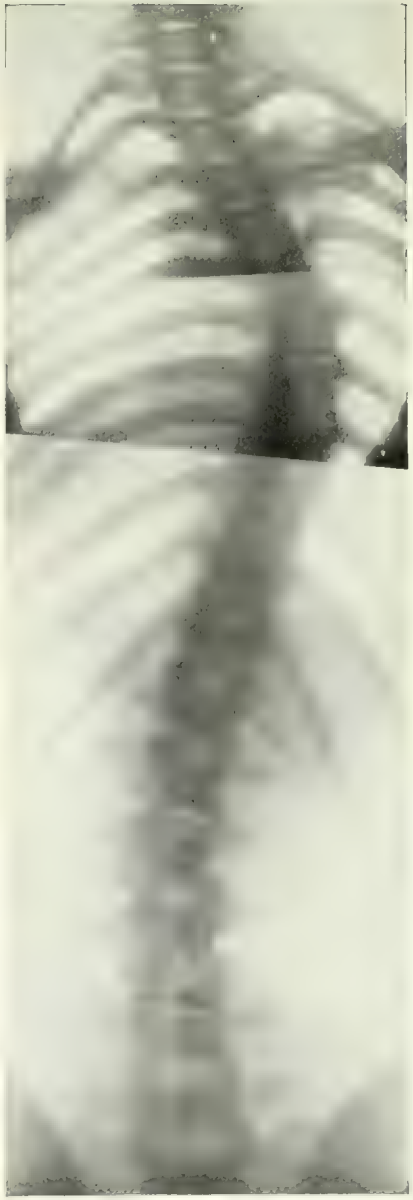


FIG. 27. Cerv. dors. Scol. From Case 8.

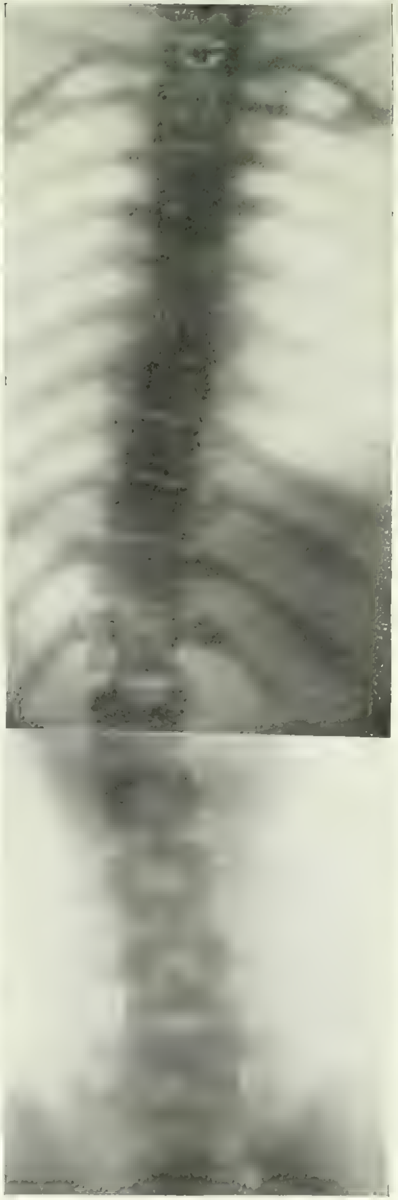


FIG. 28. Lumbo-dors. From Case 16.

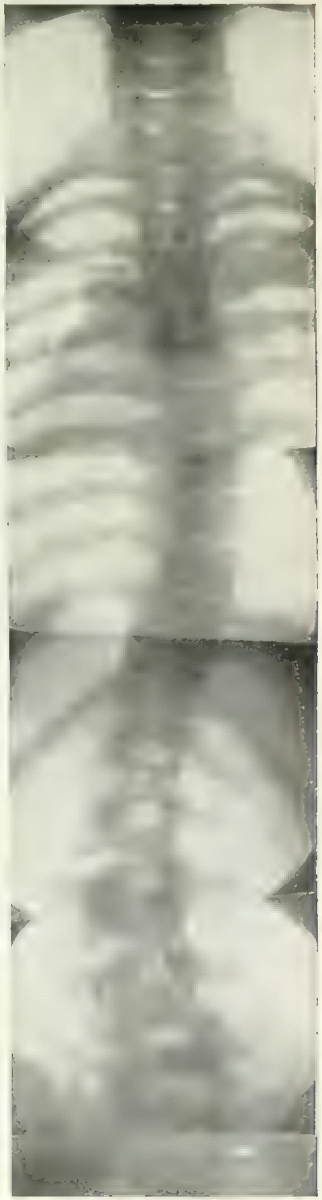


FIG. 29. Comb. Scol. From Case 22.

TABLE VI. *X-rays of the spines of the four patients, whose measurements and photographs are given in tables III and IV.*

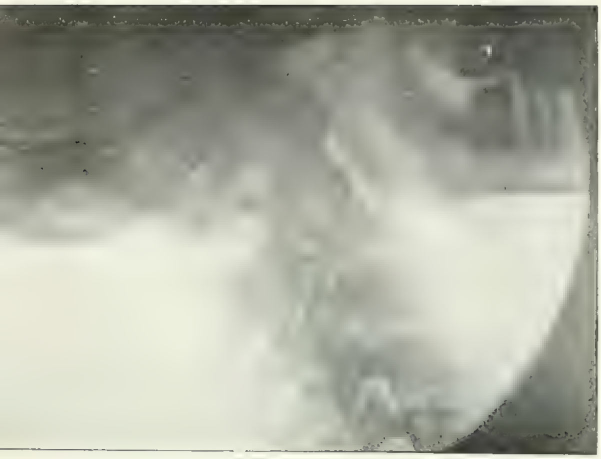


Fig. 30. From Case 12. Fusion of Atlas and Occiput.

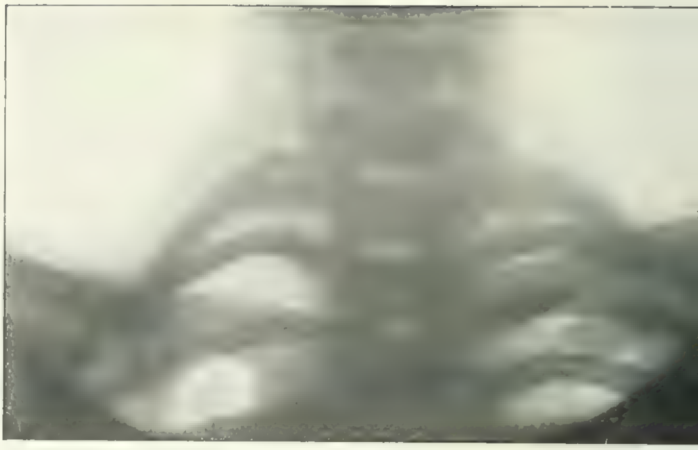


Fig. 31. From Case 13. Rudimentary first rib on the left.

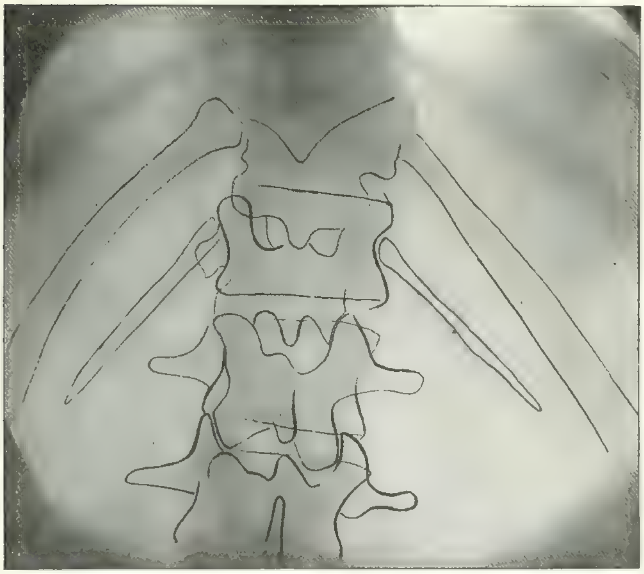


Fig. 32. From Case 21. Incomplete and asymmetrical lumbo-dorsal articular change. The right joint above the vertebra bearing rudimentary ribs has transitional character; in the left joint two articular processes of different character meet: the cranial process is of dorsal, the caudal of lumbar type. Tracing from the plate.

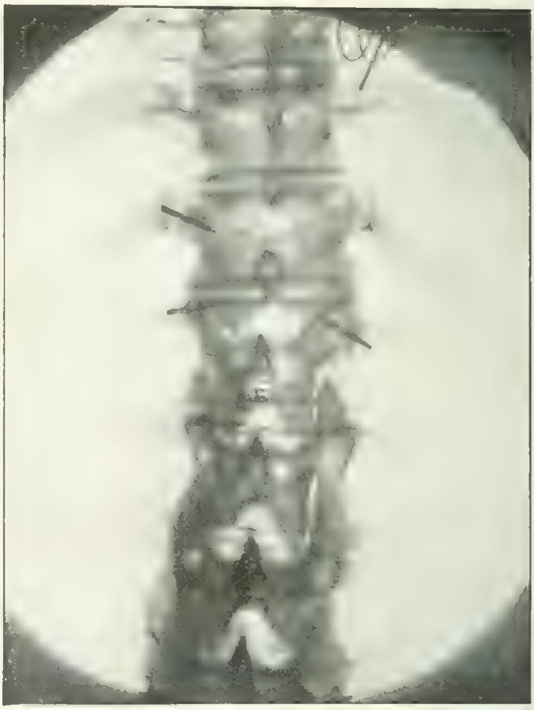


Fig. 33. X-ray from the specimen shown in Figs. 12 and 13. For description, see text.

TABLE VII.

forms of numerical variation of the spine may cause certain kinds of lateral deformities.

The x-rays show that corresponding clinical types of "habitual lateral curvature" in the great majority of cases show the variation expected at the seat of the primary curve.

The "habitual" scoliosis manifests itself at the very time at which physiological growth and changes allow the appearance of curves, based upon a "varying" development.

The different affection of the two sides of the spine in "habitual lateral curvature" corresponds with the peculiar relation of the right and left sides of the spine to the numerical variation.

Based upon these arguments and upon the fact that, in 16 out of 20 cases of so-called "habitual" scoliosis those "pathological" types of variation were found at the primary seat of the deformity present, the following statement seems to be justified:

That Developmental Error of the Human Body Occurring in Embryonic Life, which has its Morphological Expression in the So-called "Numerical Variation" of the Spine, Causes Under Certain Circumstances those Idiopathic Lateral Deformities of the Spine which Manifest Themselves in the First Half of the Second Decade of Life and which Hitherto have been Considered as Affections Acquired in Postnatal Life Owing to Purely Functional or Functional-Osteopathic Conditions.

It seems to be the Etiological Factor of "Habitual" Lateral Curvature, Better Now to be Called Delayed Congenital Scoliosis or Scoliosis Congenitalis Tarda.

In concluding, I desire to thank here all those who have given me advice, help and assistance in carrying out the work.

First of all, I wish to thank Prof. Thomas Dwight, director of the Anatomical Department of Harvard University Medical School, for much instruction, for his great courtesy in placing his valuable collection at my disposal for study and publication. My thanks are furthermore due to Drs. Goldthwait and Osgood, surgeons to the Orthopedic Clinic of the Massachusetts General Hospital for the interest they have taken in the work and for the use of their material; to Dr. Painter, surgeon to the Orthopedic Clinic of the Carney Hospital, who placed his entire curvature material at my disposal; to Dr. Brackett, surgeon to the Orthopedic Clinic of the Children's Hospital, who has also supplied me with some cases.

I am especially indebted to Mr. Walter Dodd, director of the x-ray laboratory of this hospital, who perfected the technique of the x-ray examination and who has given me in many other ways valuable assistance.

Finally, I have to thank Dr. Frederic C. Kidner for help in the photographic work, and Miss Gavaghan at the Carney Hospital, and Miss Wilde at the Massachusetts General Hospital for kind assistance.

EXPLORATORY PUNCTURE OF THE PERICARDIUM, WITH A REPORT OF THREE RECENT CASES.

BY GEORGE G. SEARS, M.D.,
Visiting Physician, Boston City Hospital, Assistant Professor of Clinical Medicine, Harvard Medical School.

Case I. Philip R., seventy years old, was admitted March 17, 1906. He had never been ill enough to be in bed since his youth. Two weeks before admission pain came on suddenly in his left side and for about a week was extremely troublesome. Dyspnea accompanied the pain and he soon noticed that his abdomen and legs were swollen. On entrance he had general edema. The area of cardiac dullness showed decided enlargement. The heart's action was somewhat irregular, but no murmurs were heard. Two days later a well marked friction rub developed over the precordium. It became less audible after a few days. The precordial dullness gradually extended until it reached on the right nearly to the nipple line, and on the left to the nipple line at the level of the fourth rib, where it merged into an area of dullness situated at the base of the left chest. The upper limit extended to the second rib, the general shape of the dull area being triangular. The heart sounds became very feeble and distant and the impulse imperceptible. No pulsus paradoxus. Over the dull area at the base of the left chest fremitus, voice and respiration were diminished. His temperature ran an irregular course but rarely exceeded 100°. As there was no tendency for the fluid to absorb, and as the patient's general condition was growing less satisfactory, the pericardium was aspirated on April 10 through the fifth left space outside the nipple line and 650 cc. of bloody serum were removed. The needle was then withdrawn as the heart could be felt beating against its point. The fluid at first came freely without suction. The patient expressed himself as considerably relieved, and the edema diminished, but the fluid rapidly recollected. The effusion in the left pleura increased and on April 24 it was tapped and 1,000 cc. of clear, yellow serum were drawn off. Reaccumulation was rapid and but temporary relief was obtained. The patient complained of considerable dyspnea which was somewhat paroxysmal in character. There was marked obstruction to the return flow of blood from the upper extremities. The capillaries of the neck and upper part of the trunk showed a condition of stasis, and the ears, nose and finger tips were slightly cyanotic. An attempt was therefore made, on April 29, by introducing a needle in the fifth space just outside the previous puncture, to empty both the pleural cavity and the pericardium without withdrawing the needle. Immediately after it was inserted there was a sudden gush of a few drams of bloody fluid, similar in appearance to that obtained before from the pericardium, and then its color changed abruptly to a clear yellow. Four hundred cubic centimeters of the latter were withdrawn before it ceased to flow. The needle was then pushed in the direction of the heart until it came in contact with a pulsating body, which was either the pericardium or the heart. The determination of this point was not made as through an oversight on the part of the house physician, to whom I had delegated the operation, the needle selected was so large that I feared to enter it further, although the sense of resistance suggested pericardium rather than heart. This was confirmed at autopsy, which also showed that the sudden gush of bloody fluid could have no other source than the pericardium. He was somewhat relieved by the removal of the pleural fluid and no further effort was made at this time. On the fourth of May he insisted upon going home, but returned ten days later in much poorer general condition and with general anasarca and cyanosis. Except that the fluid in the left pleura had increased, physical examination of the chest showed no special changes. On May 18 the left pleura was again tapped, the needle being introduced in the ninth space in the back and 750 cc. of clear fluid were withdrawn. On the following morning signs of pneumothorax were noted. On May 20 the following condition was present: The left side of the chest was distended with marked tympanitic resonance throughout the front and axilla. On inspiration there was a slight retraction of the upper five interspaces on the left, which was most marked in the fifth, in which, just beneath the nipple, the retracted surface popped suddenly outward during expiration with a sound like the breaking of a bubble, which could be heard at least ten feet away from the patient. A wave-like motion terminating at the point of sudden expansion followed the fifth interspace inward from the anterior axillary line. On palpation a series of coarse crepitations were felt on inspiration, which suggested the rupture of small bubbles, and the same phenomenon was felt on expiration but the bubbles were coarser. These bubble sounds were heard on both inspiration and expiration over the front of the left chest as high as the second rib, and outward into the axilla, while the expiratory sounds could be heard over the right front also. The respiratory murmur was audible with fair intensity down to the fourth rib; below, it was diminished to absent, and the voice sounds here and in the axilla were feeble and distant. When the patient sat up there was dullness over the lower half of the chest with tympany above, the change in the percussion note being immediate, and the bubble phenomenon disappeared. This extraordinary phenomenon persisted until the air in the left pleura was practically absorbed, which required about two weeks. He failed gradually and died on June 12. The anatomical diagnosis was tuberculous pericarditis, miliary tuberculosis of the lungs, pleuræ and kidneys, and tuberculosis of the intestines, the latter being confined to four small areas at the lower end of the small gut. The pericardial cavity contained 550 cc. of sanguineous fluid, swarming with tubercle bacilli. All the air had been acsorbed from the left pleura which contained 900 cc. of yellow fluid. Besides a few fibrous bands which united the parietal and visceral pleura there was a firm adhesion which united the tongue of lung which covers the heart to the pericardium. The presence of this adhesion in connection with a pneumothorax (or hydro-pneumothorax) probably explains the peculiar phenomenon which was noted in its neighborhood.

Case II. Housin K., an Albanian, twenty-eight years old, was admitted April 10, 1906. He had never had rheumatic symptoms and had always been well up to three months ago, when he began to complain of pain in the epigastrium. He paid little attention to it until about two weeks before entrance when it increased, and he began to have nausea and occasional vomiting. When admitted, the area of cardiac dullness was roughly triangular and extended on the right to the nipple line, on the left nearly to the anterior axillary line and above to the second rib. The heart sounds were hardly audible. No murmur or friction was heard. The pulse was small and weak and the patient much prostrated. His temperature during the first twenty-four hours varied between 100° and 101°. The amount of fluid in the pericardium was so large and his general condition so poor that, on the following day, an aspirating needle was introduced into the pericardium through the fifth space outside the nipple line, and 400 cc. of bloody serum were withdrawn. Although the fluid was still flowing freely, the operation was stopped as the heart's action became very irregular. After aspiration the area of cardiac dullness was found to be greatly diminished and, for the first and only time in my experience, its general outline was more or less pear-shaped. A to-and-fro friction sound was now present over the left edge of the sternum which persisted, with occasional changes of location, for over two weeks. His temperature, which did not return permanently to normal until May 15, was kept elevated by the development of a double pleurisy with effusion. The right chest was later aspirated on two occasions, clear fluid being obtained. After he had been up and about the ward for about three weeks he was discharged at his own request on June 17. Fluid was still present in his right chest but none could be detected in the pericardium. The case was probably tuberculous in origin, the primary focus being the apex of the right lung, which was somewhat duller on percussion with slightly harsher respiration than the left. The difference was slight, but the x-ray cast a shadow. The pericardial fluid was sterile and contained a large majority of small mononuclear cells.

Case III. Vito S., sixteen years old, was admitted April 11, 1906, with a history of rheumatic fever when six years old, which kept him in bed a year. Otherwise well up to five days ago when he began to have pain across his chest and shortness of breath. The patient was a pale, poorly nourished boy, much prostrated. The right border of cardiac dullness extended an inch and a half to the right of the parasternal line, meeting the upper limit of hepatic dullness at more than a right angle. The left border began at the second cartilage and ran downward and outward to the sixth rib in the mid-axillary line, where it met an area of dullness at the base of the left chest. No friction rub was heard, but a loud musical systolic murmur was present over the whole precordium, most marked in the fifth space in the nipple line, and was transmitted into the axilla. The second pulmonic sound was strongly accentuated. The left chest below the angle of the scapula behind was dull, but fremitus and respiratory sounds were present to the base. There was marked inspiratory aspiration of the vessels of the neck but no pulsus paradoxus. The presence of fluid in the pericardial sac was confirmed with the x-ray by Dr. F. H. Williams. The heart was much enlarged and it was doubtful if a large amount was present, but as the temperature, pulse and respiration were rising and his condition seemed serious, an exploratory puncture was made with a needle introduced in the sixth space in the anterior axillary line and pushed inward until the heart could be felt beating against its point. About two drams of clear fluid spurted out and then no more could be obtained. A second attempt in the fifth space close to the right edge of the sternum was without result. His later history was that of many cases of severe rheumatic infection in which the heart and pleura are involved. A large effusion developed in the left chest which twice required aspiration. The cardiac muscle became more and more incompetent and general anasarca came on. His pulse rose to 130 and his respirations to 40. His condition appeared almost hopeless and then improvement began and continued steadily until he was discharged on June 12 at his own request.

Although each service at the hospital has usually presented at least one occasion for exploration of the pericardium, this is the first time that I have had the opportunity to attempt the operation three times within five days. In all three cases, the needle was first introduced in either the fifth or sixth left space in the neighborhood of the anterior axillary line, and then pushed inward toward the heart until fluid was obtained. In the first this site was chosen because a soft friction sound could be distinctly heard over the whole precordium, as if the heart was close to the anterior chest wall and therefore in danger of being wounded if the needle were inserted near the sternum. The selection of the same route in the second was chiefly determined by the success of the previous day. In the third there was added reason for adopting it, yet I confess to a feeling of greater confidence when introducing the needle at this point than when it is plunged in directly over the heart, which the experience of surgeons, who have found that the heart not infrequently lies close to the anterior chest wall, when the pericardium is opened to secure permanent drainage, has shown to be reasonable.

While it is doubtful if every case of pericardial paracentesis has been recovered, owing to the difficulty of tracing them in the very imperfectly indexed records of the hospital, thirteen have been found which came under my personal observation. Positive results were obtained in eight of these, the amount of fluid varying from a few drams (two cases) to 38 oz. The fifth or sixth left space at or beyond the extreme limit of cardiac dullness was used successfully in five of the seven cases in which it was tried. In one of the two unsuccessful cases fluid was obtained through another route as stated below. I have been deterred on several occasions from selecting this route because of the dullness in the lower part of the left axilla, the result either of coincident pleural effusion or of compression of the lung, which is always present in cases of large pericardial exudates and which makes it impossible to determine accurately the outer limit of the pericardium, but the first case, where such a condition existed, shows that this need not be an obstacle. In the other three successful cases the fourth and fifth right spaces were each used once, and in the remaining case, fluid was twice obtained through a needle inserted below the costal margin, the effusion being so large that it depressed the diaphragm and so distended the upper portion of the abdomen as to lead to error in diagnosis. The first insertion of the needle was by no means always successful, for in one case three attempts were made in the fourth and fifth left spaces without result before one in the fifth right obtained fluid; in another a dry tap in the fourth right space was followed by success in the fifth left at the outer limit of dullness, and in a third the reverse happened, though here the fifth was used instead of the fourth right space. In the five unsuccessful cases, the fourth right space was tried three times and the fifth right, the fifth left close to the edge of the sternum, and the fifth left beyond the limit of dullness, once each. In all, twenty three attempts were made in these thirteen cases to aspirate the pericardium, of which thirteen were unproductive. Although the greatest number of successes, as well as the largest amounts of fluid, were obtained through the fifth or sixth space at or beyond the outer limit of dullness, this route has the great disadvantage that the pleura, and often the lung, must be traversed, thus giving an opportunity, in case pus is present, for further infection. Some other site should, therefore, be selected when the effusion is presumably purulent. While I have had no antemortem experience with Larrey's route, the left costo-xiphoid angle, it has theoretical advantages, especially in its avoidance of the pleura, which fully justify Fitz's remark that "this way into the pericardium should always be favored in cases of suspected exudation, if not in the first instance, certainly when aspiration at other points has proven ineffective." He was confirmed in his opinion by a successful post-mortem aspiration here after two failures during life in the fourth and fifth interspaces near the sternum, but success appears to be no more constant, even after death, here than in other situations, for out of three cases in which I have asked my house officers to aspirate post-mortem in the left costo-xiphoid angle, two failures resulted. One of these occurred in the first case recorded above although several hundred cubic centimeters of fluid were found at the autopsy; in the second, although an attempt made during life to aspirate through the fifth left space beyond the limit of dullness was without result, a post-mortem tap in the same situation yielded 2 oz. after Larrey's point was unsuccessfully tried. Whatever the site selected and whether done ante-mortem or post-mortem, an element of luck is always present which seems most frequently to depend on the clogging of the needle by particles of fibrin. As it is difficult to make pericardial fluid flow even under most favorable circumstances, a preliminary puncture with a hypodermic needle was discarded after the earlier cases. The possibility of doing harm may be somewhat diminished by its use, but this is practically negligible if the larger needle is inserted with care. It has always come in contact with the heart in these cases during some part of the process; in fact, that organ has always been sought when the flow was not immediate in order to ensure the presence of the needle in the sac. The heart, except perhaps in children, appears very tolerant of puncture and at times seems even to be stimulated by it. The question of possible harm was raised but once in these 13 cases, and then only because death occurred within twelve hours. This was in a patient very ill with pneumonia, whose pericardium was punctured unsuccessfully in the hope of relieving the pressure of the surrounding fluid. The heart was struck by the needle and it is possible, though hardly probable, that death was hastened by it. Out of 79 cases collected by West, prior to 1883, only one instance is recorded where the operation was in itself fatal, and of the 14 mentioned by

Fitz, in which the operation has been done at the Massachusetts General Hospital, it was not responsible for any death. When but two fatal results, one of which was very doubtful, occur in a series of over 100 cases the operation must be considered reasonably safe. Forty-eight in West's series, 5 of the Massachusetts Hospital cases and 6 of my own died, but this was due to the progress of the underlying disease which pericardial exploration was unable to prevent.

The indications for exploration of the pericardium, which have long been accepted as the guide to operation, have been based on the persistence of a large effusion in spite of treatment, on the failing strength of the patient in consequence of the effusion and on the danger to life from extreme dyspnea. No question can arise as to the proper course under such circumstances; relief should be given, if necessary by a permanent opening. There is also no excuse for delay where pus is suspected, but it is still debatable, since our limited experience with the operation has as yet given insufficient data for decision, whether it should not be done as a means of hastening cure along the same lines which are followed, more or less as a matter of routine, in treating pleurisy with effusion. Both are serous surfaces and liable to the same forms of inflammation, but the analogy is not complete from the therapeutic standpoint. We may try after aspiration to limit pleural adhesions by restricting the movement of the chest, but we cannot interfere with the activity of the heart. While a pleural effusion, after the acute stage has subsided, has apparently little practical value, the even pressure of the surrounding fluid in pericardial effusions, as Ewart has pointed out, may give some support to vessels inclined to active dilatation, It has also been suggested that the prolonged separation of the two inflamed surfaces of the pericardium by fluid may prevent adhesions by giving time for the inflammation to subside before they again come into apposition. This possibility may be acknowledged, but their formation depends far more on the nature and severity of the process, and the advantage secured by an early arrest of the inflammation from a timely aspiration, as in pleurisy, in which it is confidently claimed that it prevents their development, might more than compensate for the doubtful good which the continued presence of the fluid might do. An illustration of the good effect of paracentesis is furnished by Case 2 in which it was followed by an immediate fall in the temperature and the rapid absorption of the remaining fluid. The relative value of pericardial paracentesis, as a curative and not as a life-saving measure, as an operation from choice, not from necessity, can only be estimated by comparing the end results of two sufficiently large series of cases, in one of which it has been employed for reasons similar to those which would justify aspiration of the pleura, while in the other the expectant plan of treatment has been carried out; but so long as the present conservative attitude toward the operation is maintained, which makes F. C. Shattuck's eight cases, Romberg's twelve and my own thirteen an unusual record of individual experience, if the published cases are a criterion, such a comparison will be impossible owing to the inadequate number available. This conservatism has been fostered by the frequent instances of spontaneous recovery and the unsatisfactory results which have thus far been obtained in pericardial paracentesis, but it has been overlooked that it is usually postponed until it has become a last resort in desperate cases and that an earlier operation, or even a more radical one, would undoubtedly have greatly increased the number of recoveries. A reaction toward more radical treatment has lately been apparent, to which the growing percentage of recoveries after permanent opening in cases with purulent effusions has largely contributed, and an increasing tendency has also been shown by surgeons to relieve the physician of the care of cases, where operative interference is indicated, by advising incision on the score of added safety and efficiency. Brentano, who has operated upon five cases with four deaths, all of which were due to the further progress of a necessarily fatal disease, puts the matter very succinctly from the surgical standpoint. He says that in all his cases the bulk of the fluid was behind the heart, which lay close to the front wall of the chest, and consequently was in danger of puncture if a needle had been used; that the pleura is almost necessarily wounded in aspiration and is, therefore, liable to infection; that aspiration is an incomplete operation and frequently has to be repeated, and that adhesions are less general after permanent opening than after puncture. While advocating a permanent opening as the operation of election, he modifies this statement by restricting it to those cases where the fluid has rapidly reached a life-endangering amount, and especially warns against its use where cardiac disturbances of long standing are present and where the possibility of previous adhesions exists, and frankly criticises his own act in operating on some of his cases. Even if all his premises are granted, aspiration would still retain a wide field of usefulness, for experience has shown that it is a reasonably safe procedure and in desperate cases it is less dangerous than to submit the patient to a much longer and severer operation, while the relief furnished, even if temporary, may place him in better condition to undergo more radical treatment. Even under the restricted use which has thus far been made of it, it has proved itself a valuable means of diagnosis, of palliation and often of cure, but where aspiration fails or where the fluid repeatedly reaccumulates and the underlying condition is not incurable, or where there is a strong probability of pus, a permanent opening should be favorably considered.

The result of my experience with the cases which have come under personal observation, combined with some unfortunate instances in which autopsy showed that life might have been saved but for an ill-timed conservatism, has been a growing tendency to emphasize the points of similarity between pericardial and pleural exudates, and, instead of delaying until it has become the only hope of cheating death of an expected victim, to resort to early aspiration in the hope of cutting short the disease or of getting valuable information which may aid in prognosis or further treatment.

Boston City Hospital.

CASES SHOWN BY THE STAFF AT THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION, JUNE, 1906.

THE ORIGINAL CASE OF ESOPHAGOTOMY.

BY DAVID W. CHEEVER, M.D., SENIOR SURGEON.

The case was operated on *forty* years since, being the first time this operation was done in America. Only fifteen cases, in Europe, were recorded previously. Surgeons feared an incurable fistula.

In this case a fishbone had been lodged in the throat three days. Fever, chill and dysphagia. Operation by cutting down in the side of the neck and opening the esophagus. Foreign body extracted. Wound left open. Closed in seventeen days. I have operated six times and always left the wound open.

Nothing was given by mouth for twenty-four hours, then water, milk and water, milk. The wound had always closed and remained perfect.

LIGATURE OF THE INTERNAL ILIAC ARTERY.

BY GEO. W. GAY, M.D., SENIOR SURGEON.

A case in which I assisted Dr. William H. Thorndike tie the internal iliac artery for secondary hemorrhage. The patient, a hardy, healthy man, is fifty-six years old. He has had an unusual series of misfortunes in the way of personal injuries from which he has fairly well recovered, notwithstanding the fact that the events took place before the days of antiseptics.

First, while running, he fell striking upon his face cutting a large gash in his lower lip through which four of the lower incisors were driven. The patient removed the teeth from the wound in which they lay, and carried them to a dentist in the neighborhood, who replaced them in their original sockets within half an hour. Three of the teeth renewed former connections and are in place to-day. One came out.

Second, while working upon a staging he fell head foremost into shallow water, striking upon "granite chips," and receiving a compound fracture of the skull upon the left vertex. He recovered in due time with no bad after-effects.

Third, while serving as a fireman he fell from a building into a peach tree and was impaled upon its branches. A limb about an inch in diameter penetrated nearly a foot through the ischio-rectal fossa to the left of the anus. A small piece was removed by incision above the crest of the ilium on the left side; the remainder was pulled out from below. Severe secondary hemorrhage came on in about seventeen days. After the second attack Dr. Thorndike tied the internal iliac artery through the classical incision in the left iliac region. He recovered without any serious complications.

Fourth, about two years later his foot was caught between the ferryboat and the drop, and was crushed. His leg was amputated four inches below the knee. He now walks so well with his artificial leg, that one not knowing him, would notice nothing unusual in his gait. He climbs ladders, rides a bicycle and does anything that a man of his age with two good legs does.

GASTRIC ULCER.

BY E. M. BUCKINGHAM, M.D.

Case I. This patient is interesting chiefly for diagnosis. She had gastro-enterostomy six years ago for an ulcer, that the surgeon now believes did not exist. Slight dilatation of the stomach; distress and vomiting after meals; tenderness. Symptoms occasionally return, and all, including dilatation, are relieved by regulated diet. There is a neurotic element.

Case II. Had slight hemorrhages for four years. Became worse in 1903, with vomiting and rigid abdomen. Exclusive rectal feeding for nine days, but then vomited the first food taken by mouth. Gradually recovered use of stomach, and remained well eighteen months. Symptoms returned suddenly, but with tenderness on opposite side. At operation scars of old ulcers found, giving clinical proof that she had really recovered; that the new symptoms were not a lighting up of an old unhealed ulcer, but were a new case of disease, due to a return to old conditions of life. She has been twice operated upon, and since then twice discharged relieved without operation. The history teaches the hopefulness of persistent non-operative treatment, and the need for later medical supervision. Free HCl is not always present.

Case III. Two years ago vomited bloody mucus, and treated for gastric ulcer. Now on admission, pain, vomiting, definite and extreme tenderness in epigastrium, and in back at level of eleventh dorsal. Food omitted, nutrient enemata two weeks, but daily vomiting. Frankly abandoned treatment and tried to feed by mouth, as prelude to operation. Vomiting ceased with the enemata, and recovery has been steady. Lesson: Complete stomach rest was efficient, but either the enemata or the opium in them kept up vomiting until admission to the hospital.

Case IV. Chill and vomiting three days before entrance. Tenderness in right epigastrium; rigidity. Typhoid temperature, but no other sign or symptom of typhoid. Rising leucocytosis. Medical consultant suggested possible perihepatitis; surgical consultant suggested possible partial perforation, gangrenous gastric ulcer. Advised against operation. Fed solely by rectum for seven days. Now gradually added food by mouth. Gained in all ways steadily from first day. Tenderness lasted a month, but in bed longer to lessen peristalsis. Gained weight on 48 oz. peptonized milk and broth. Returned from convalescent home to-day quite well. Treatment lasted about three months.

Case V. Pain, tender, not rigid. Admitted, then lost 1½ pints of blood by rectum and mouth. Hgb., from .95 to .50. Lost 1,100,000 reds. Solely rectal enemata six days. Thirst relieved by 1 pint normal salt solution by rectum every six hours, followed in three hours by nutrient. Cracked ice is dangerous.

PAPILLOMA OF THE LARYNX.

BY J. W. FARLOW, M.D.

I show a boy fourteen years old, from whom I had removed a very extensive papilloma of the larynx two years before. The boy had suffered from intense dyspnea, and several futile attempts had been made to relieve him. I removed enough of the growth to relieve the dyspnea, and then, with the Dundas Grant guarded forceps, removed every particle of the growth so that now the larynx is free, the voice is perfect and there has been no recurrence for two years.

NEEDLE IN ELBOW JOINT. METHOD OF OPENING JOINT. MEASURE FOR REMOVING NEEDLE.

BY H. L. BURRELL, M.D.

On March 29, 1906, A. C., male, sixteen, single, entered the hospital. He stated that one week ago he had stuck a new needle an inch long into his left elbow. He did not know whether the needle broke off or whether a portion of it remained in the joint. The elbow was swollen and painful and had kept him awake the night before entrance to hospital. For twenty-four hours preceding entrance was unable to straighten the forearm on the arm.

He was in good physical condition but somewhat nervous. His heart was slightly irregular and rapid at times. Lungs normal. An x-ray shows a part of the needle apparently in the left elbow joint on the ulnar side, anteriorly.

On April 3 at the parents' request he was given ether and operated. First a vertical incision three inches long was made on the radial side of the insertion of the biceps tendon. The tissues were explored down to the joint but the needle was not found. An incision was then made of about three inches length just anterior to the capitellum on the radial side of the upper arm.

This incision started opposite the external condyle and extended down the forearm. The interval between the supinator longus and the extensor carpi radialis longior was recognized and the muscles were separated. The radial nerve was recognized and the radio-humeral joint was opened. This opened the joint laterally and it was very satisfactory to find that by lifting the muscles forward while the elbow was slightly flexed the joint could be fairly well explored, but still no needle or part of a needle was found.

The inference was that the needle must be anterior to and not in the joint. A fruitless search was made in the tissues in front of the joint, care being taken that the structures were not irremediably damaged. Finally, at the end of an hour and a quarter I was about to abandon the search and to accept defeat, when it suddenly occurred to me that I might secure the needle by a method that I had once used successfully on the knee joint. The means is very simple and consists of stuffing the joint with a gauze " strip " and removing the strip. This was done and when the gauze came out the needle was found entangled in its meshes.

The incisions were closed with interrupted silkworm-gut sutures and a dry sterile dressing was applied. The recovery was uneventful and on April 14 the boy was discharged from the wards with nine-tenths extension at the elbow, one-fifth limitation of flexion and pronation and supination normal. The limitation of movement is simply temporary and will eventually completely disappear.

The following cases were shown by F. S. Watson, M.D. :

1. SUBPARIETAL RUPTURE OF THE SMALL INTESTINE FROM A BLOW UPON THE ANTERIOR ABDOMINAL WALL. OPERATION FIVE HOURS AFTER RECEIPT OF THE INJURY.

Dec. 8, 1897. Laparotomy and resection of eight inches of the small intestine in which the laceration was located.

End-to-end suture of the divided bowel by Cushing right angle suture.

Result. — Union *per primam.* Recovery: Patient has been perfectly well ever since — nine years.

ABDOMINAL INJURY.

This patient was riding a bicycle when an express wagon coming in the opposite direction collided with him.

The injury was inflicted by the end of the pole of the wagon which struck him on the front of the abdomen.

After being two hours in the hospital, he appeared to have sustained no serious injury, and wished to go home. He was detained, however, and two hours later symptoms of beginning peritonitis developed. One hour after this and five after the injury the abdomen was opened by a short median incision midway between umbilicus and the tip of the ensiform cartilage. Directly beneath the incision lay the injured part of the intestine. (The specimen was shown.)

A circular ragged hole had been made in the gut about the size of a quarter of a dollar silver piece. Near this wound was a second laceration involving only the peritoneal covering of the intestine.

Eight inches of the gut was resected including the lacerations. The ends were united by a Cushing right angle suture.

The outer abdominal wound was closed tight without drainage.

Healing *per primam*; uninterrupted recovery. The patient has suffered no inconvenience since.

There was no sign of external injury in this case.

2. GASTRIC TETANY — ABSOLUTE AND IMMEDIATE CURE PROCURED BY GASTROJEJUNOSTOMY. OPERATION PERFORMED OCT. 29, 1903.

The patient, a young man, had been suffering from crises of gastric tetany of typical character and increasing severity for several months past and entered the hospital in a critical condition. Two days later a posterior gastrojejunostomy was done. All symptoms immediately and permanently ceased as soon as the patient had recovered from the anesthetic. He has been in perfectly good health ever since — two years and eight months. At time of operation the stomach was found to be much dilated, the pyloric orifice was thickened and much narrowed. There was no evidence of the presence of either a malignant process or of gastric ulcer past or present.

3. FRACTURED PATELLA IN WHICH PERFECT RESULT FOLLOWED APPROXIMATION OF THE FRAGMENTS BY WATSON'S METHOD OF APPLYING WIRE SUTURES.

This patient, a powerful young man, fractured his patella by muscular effort.

The two fragments were brought together by silver wire applied in the following manner:

The fractured ends of the bone are sawed in such a way as to allow them to be adapted one to the other smoothly and to overlap slightly; for the latter purpose they are bevelled by sawing them through. A second wire (or braided catgut strand) is then carried entirely around the two fragments of the broken bone, passing close to their upper and lower ends respectively.

The two fragments are now pressed together by the hands and the second or surrounding wire, is drawn tight and its ends twisted together.

This serves to hold the fragments in perfect apposition while they are still more securely brought together by drawing the first wire and its ends are twisted together on the side of the bone opposite to that occupied by the twisted ends of the other wire.

The twisted parts of each of the wires are then bent so as to lie close to the outer edge of the bone on either side.

The periosteum is not sutured. The outer incision, which is made of crescentic form, is closed tight without drainage.

Dr. Watson stated that in a series of 50 cases in which he had employed this method of treatment the immediate results had been all that could be desired except in two instances,— infection occurring in one of these and the wire pierced the skin in the other and had to be removed. Of the ultimate results he knew but eight. In these cases the intervals subsequent to the operations were from two to eight years — and in all of them there was close approximation of the fragments and all the patients had perfectly useful legs. The wires had given no trouble in any instance.

4. FRACTURE OF THE VAULT AND BASE OF THE SKULL.

The fracture extended from the upper part of the parietal bone of the right side directly downward, involving the middle meningeal artery, and passing in another line of fracture forward through the frontal bone, the roof of the orbit and thence downward and backward to the saphenous bone lacerating the cavernous sinus.

The accident was due to the impact of a brick falling upon the left parietal bone from a height of twenty-five feet in a slanting direction.

All shreds of periosteum and tendon that might interpose between the cut ends of the fragments are carefully removed.

A transverse canal is then drilled through each of the fragments and a stout silver wire (or three strands of chromic catgut braided into one cord) is passed through the canal of one of the fragments then turned and carried through the other canal in the second fragment. Trephining at the site of injury was done one hour later.

A very extensive intradural hemorrhage was found on that side of the brain. The trephine opening was extended forward through the parietal and frontal bones and downward through the parietal and temporal bones with a rongeur. The patient at this point stopped breathing. The dura was quickly incised and a very large blood clot which lay on the side and beneath the left side of the brain was swept out by the finger. Respiration was at once resumed. The hemorrhage was found to arise from a laceration of the cavernous sinus in part and in part from the middle meningeal artery. The latter was arrested by ligation of the artery, the former by pressure with gauze packing. The gauze was removed on the ninth day. No further bleeding took place. The wounds gradually healed. Convalescence was uneventful; the patient has been in good health ever since his discharge from the hospital nine years ago.

5. SUCCESSFUL PERINEAL TOTAL PROSTATECTOMY IN A CASE OF A PATIENT EIGHTY YEARS OF AGE AND IN FEEBLE CONDITION.

This patient was shown as an illustration of the benefits following a properly performed perineal prostatectomy even when the conditions appear to be very unfavorable.

Before operation he had been suffering from frequent and painful urination, losing strength and weight. He had also cystitis. The renal function, however, was not seriously compromised, and because of this fact, his suffering, and the impossibility of securing any proper care of the patient in his home, operation was advised, despite the presence of somewhat marked organic cardiac disease, and his very feeble general condition.

The method employed in this case was that which Dr. Watson stated he had employed since 1889, and which was first suggested by Dr. Gouley, of New York, is identical with the method used by Dr. Goodfellow, of San Francisco, since 1890, and is undoubtedly the simplest and most rapid method for total removal of the prostate, in all but those cases in which there is a very extensive median lobe hypertrophy reaching high up into the bladder. In the latter class Dr. Watson said that he preferred the suprapubic approach for the purpose of removing the gland.

The operation is performed thus: An ordinary external perineal median perineal urethrotomy incision is made on a grooved staff. The staff is withdrawn. The posterior urethra is dilated by passage through the incision, first of a large steel sound, next of the little finger and then of the forefinger.

An incision or an opening, made either with some convenient sharp instrument like a gum lancet, or scratched by the nail of the forefinger, is made through the mucous membrane and outer capsule or fibrous sheath of the gland, on each side of the prostatic urethra, posterior to the compressor urethral muscle. These incisions or openings should be made above the floor of the prostatic urethra but close to it on either side, for by so doing the ejaculatory ducts may escape injury, because along this line is the easiest approach to the lateral lobe of either side of the gland, and because enucleation of the lobes is most readily begun along this part of the gland.

Through each of these openings in turn the tip of the forefinger is entered and first one and then the other lateral lobe is enucleated. The enucleation proceeds between the outer or fibrous sheath of the gland and the thin closely connected capsula vera. Care should be taken to avoid pressure by the finger backward or downward upon the lobes during the enucleation and their removal when they have been freed from their beds, else the rectum may be injured. Each lobe is pushed or drawn out by the forefinger or forceps through the lateral opening in the prostatic urethra and the median perineal incision when their separation has been accomplished. If the lobes are of great size the perineal urethrotomy incision may require lateral enlargement by a small incision on one or both sides of it to permit them to be withdrawn.

The bladder is drained for from four to eight days, according to circumstances. If hemorrhage is sufficient to demand it, it is controlled by gauze packing around the catheter. If the outer sheath of the gland has not been injured there will be no hemorrhage of importance. With care the outer sheath need never be torn.

The operation is performed in from three to fifteen or twenty minutes, according to the nature of the conditions encountered.

The results are in all respects as good as those obtained by any other technique.

In the case shown perfect cure had resulted from the operation. That is to say, there was now normal micturition in all respects, a clear urine, entire absence of pain or discomfort and an improvement in the patient's general condition.

The operation was done in this case eight months ago.

6. UNILATERAL RENAL CALCULUS SHOWN BY X-RAY EXAMINATION.

The following procedures were carried out: Nephrolithotomy, suture of the kidney incision and closure of the outer wound. Recovery from the operation. Improvement of pyonephrosis present at time of operation. Subsequent recurrence of pyonephrosis and failure of general health.

Nephrectomy three months after the first operation. Paraperitoneal method employed for removing the kidney. Recovery, healing of wounds. Restoration to health and freedom from all symptoms.

The x-ray photograph, the calculus, and the kidney removed, were shown, together with the patient.

Attention was called to the advantages of the paraperitoneal method of operating in certain cases presenting special difficulties. The advantages being the extraperitoneal removal of the kidney which was secured by stripping the parietal peritoneum from the abdominal wall between the incision made just outside the linea semilunaris and the peritoneal reflection further out upon the lateral aspect of the abdomen, and the direct and free avenue of approach to the pedicle afforded by this method. This patient had but recently left the hospital after convalescing from the second operation.

7. RENAL CALCULUS. STONE SHOWN BY X-RAY PICTURE.

Unilateral nephrolithotomy. Kidney infected. Renal incision closed by suture after removal of calculus. Outer wound closed except small opening left for drainage for four days following the operation. Drain then withdrawn. Rapid closure of wound; complete recovery; restoration of patient to good health; freedom from all symptoms. Operation done eighteen months ago.

8. RENAL CALCULUS. CALCULUS SHOWN BY X-RAY PICTURE.

Bilateral nephrolithtomy performed simultaneously on both kidneys. Complete recovery and freedom from all symptoms since operation performed eight months previous to time when patient was shown.

This case was interesting, as being, so far as the writer was aware, the first in which simultaneous bilateral nephrotomy had been undertaken for removal of renal calculi.

The operation upon the second kidney immediately after the first one had not seemed to add materially to the gravity of the operation.

9. MOVABLE KIDNEY. NEPHROPEXY.

Manner of applying suture for fixation of the organ, devised by me, demonstrated. Recovery and freedom from all symptoms from which the patient had previously suffered.

The feature of this case, which it was desired to show, was the manner in which the suture for fixing the kidney in place is applied. This was devised by me twelve or more years ago, and I have found it exceedingly satisfactory ever since, having employed it in all the cases in which I have done nephropexy.

The method of applying the suture has been described and illustrated in more than one published article on this subject, and those present in the audience were given the references to these articles, the last of them was published in the Boston City Hospital Medical and Surgical Reports for 1905.

This patient was operated upon eighteen months ago.

10. ACUTE OSTEOMYELITIS OF THE BODIES OF TWO OF THE LUMBAR VERTEBRÆ.

Extensive retroperitoneal abscess formation on the left side of the abdomen. Abscess evacuated by lumbar incision. Affected parts of the bodies of the vertebræ curretted. Drainage; prolonged, slow, convalescence. Final, complete recovery. No disability following recovery.

The operation was done seventeen months ago.

The patient was shown on account of the rarity of this disease in this special location, and because of the difficulties of diagnosis. The symptoms pointed strongly to an intraperitoneal rather than an extraperitoneal lesion. The patient was in a very serious condition both at the time of operation and for six or seven days subsequently.

Dr. E. H. Nichols was asked to speak upon this subject and mentioned two similar cases coming under his observation.

(To be continued.)

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Reports of Societies.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING, HELD AT SALT LAKE CITY, UTAH, AUG. 30, 31 AND SEPT. 1, 1906, WITH THE PRESIDENT, DR. M. L. HARRIS, OF CHICAGO, IN THE CHAIR.

PRESIDENT'S ADDRESS — TESTIMONY AND EVIDENCE IN MEDICINE.

PRESIDENT HARRIS deviated somewhat from the custom of his predecessors of presenting some purely surgical subject for consideration, in order to take up a matter of a more abstract nature, yet one which he believed to be of the greatest practical importance, and one too often neglected by most physicians. He referred to the question of testimony and evidence in medicine.

The physician must recognize the possibility of error in the testimony of those who have every reason and intention to be honest. Therefore, in receiving knowledge of facts from the testimony of others, one should be influenced by their accordance with facts previously known or believed, and this constituted what is termed their probability; but in being influenced, one must guard against two sources of error, namely, unbounded credulity and unyielding skepticism, for the former is the attribute of a weak mind, which seldom thinks or reasons, while the latter belonged to those who find nothing probable beyond their own limited field of observation and experience. That those things which accord with one's own observations were more readily believed than those which did not, was quite natural, and thus the value of a wide experience became evident.

Testimony and evidence were by no means the same. There might be a great deal of testimony, yet very little evidence. By evidence was meant "the means by which any alleged matter of fact, the truth of which is submitted to investigation, is established or disproved." This is the legal definition, and indicated its origin by containing hidden within it a description of the method of procedure in law. A definition which conveyed a better idea of the meaning of evidence as applied to medicine or the investigation of natural phenomena, is that evidence is any fact which, when presented to the mind, effects or tends to effect a conviction concerning the existence of some other fact. This did not presuppose nor assume any certain conclusion, but left the conclusion to be that which the evidence warranted. The value of the evidence in establishing the facts as such in any particular case varied greatly.

Most of the testimony of patients was presumptive evidence of the disputable variety, and while the presumption was usually that the statements made were true, this was by no means always the case. For instance, in the case of a young woman with suppression of menstruation and an enlarging abdomen, experience had shown that the incentive to mislead was so great that the presumption was entirely in favor of the testimony being false. Also in that large class of personal injury cases in which monetary compensation was sought, a large experience involving thousands of cases had convinced the author beyond a doubt that much of the testimony in this class of cases was presumptively untrue, and that it could only be believed when substantiated by correlated facts. These conditions should be recognized by the physician in order not to be misled by the statements which he received from the patient.

Every diagnosis was or should be a conclusion based upon evidence, yet how often did we find, when the rules of logic were applied, that the diagnosis instead of resting on evidence, rested on assumption and inference. This was due to the fact that the majority of physicians in their ratiocinations failed to distinguish between assumption, inference and fact. An assumption was that which was taken for granted, that which was accepted as true without evidence; while an inference was the result of a ratiocination based upon a certain amount of evidence. The difference between an inference and a conclusion was that the former was drawn from the appearance of things, was partial and indecisive, and pertained to particular circumstances, while a conclusion was drawn from real facts, was full, decisive and conclusive, and expressed the necessary dependencies of the premises. The difference between an assumption, an inference and a conclusion was clearly illustrative.

In medicine, he said there were many hypotheses which were of the greatest value in enabling us to develop the facts, but when we came to the practical application of our knowledge to the individual case, or to the giving of testimony before courts and juries, we should learn to recognize and to distinguish the assumed, the inferred and the hypotheses, so as to confine ourselves to the known facts and the warrantable conclusions derivable therefrom.

GASTRO-INTESTINAL ULCER.

Dr. H. D. Niles, of Salt Lake City, Utah, referred to the causes of gastro-intestinal ulcer, to the symptoms, and stated that in developing our knowledge of this lesion we must bear in mind that ulcer was not only a producer of symptoms, as a primary lesion, but as the antecedent pathology of many grave complications and sequelæ; it might indirectly cause a great variety of puzzling symptoms, which the surgeon must try to interpret correctly. So long as in the consulting room and at the bedside of patients physicians permitted themselves to think of gastro-intestinal ulcer simply as a theoretical possibility, of rare occurrence and obscure pathology, the symptomatic treatment would prevail, and unsatisfactory results would follow. As soon as we learned to appreciate that ulcer was not only a real pathological entity, but that it was the most common of all gastro-intestinal lesions, a producer of distressing symptoms and a forerunner of dangerous complications, we would find ourselves very near the true explanation of many obscure chronic abdominal symptoms, and we would be prepared to formulate a timely and rational treatment for the pathology that produced these symptoms.

DISCUSSION.

Dr. Andrew C. Smith, of Portland, Ore., said that gastro-intestinal ulcer was common. It was a pathological entity that should be considered in all conditions of chronicity of abdominal symptoms. Formerly these cases were treated expectantly and continuously for long periods of time, not realizing the pathological condition. In the great majority of cases of chronic abdominal affections, gastro-intestinal ulcer was and should be considered the prime lesion.

Dr. W. W. Grant, of Denver, Colo., said that gastro-enterostomy for ulceration of the stomach and intestine, particularly the duodenum, and for obstructive lesions of these parts, was now one of the most common and conservative of modern operations. Like most new surgical triumphs, it was likely to be somewhat abused before it reached its proper status as a surgical procedure. Surgeons should be a little more conservative in the surgical treatment of these conditions, and not until there were manifest evidences of ulcer, not in acute hemorrhage, but persistent ulceration or obstruction, was it desirable to perform this operation. A large number of these cases were attended with a profuse acute hemorrhage. They were the chronic digestive cases, in many of which the hemorrhage was not manifested; but the investigations of Rosenthal and Frederick showed that in these cases there was occult hemorrhage. This was shown chiefly by microscopical examination of the contents of the stomach and of the fecal discharges. When this condition existed and persisted, operation was unquestionably demanded. Operation, however, should not be undertaken until medical treatment and other non-surgical measures had had a reasonable trial.

Dr. B. B. Davis, of Omaha, Neb., said that in a number of instances of ulcer of the stomach, duodenum, and in the region of the pylorus, he had been able to get a definite idea as to the location of the ulcer by distending the stomach, whereas before this he was absolutely at sea. Whenever there was suspicion of ulcer, either of the stomach, the duodenum or intestinal tract lower down, the physician should resort to systematic daily examinations of the stools for blood. In a number of instances he had been able to arrive at a definite idea in this way, whereas if one resorted to gross inspection simply, he never would have suspected what had existed.

Dr. John C. Morfit, of St. Louis, Mo., said there was nothing that he admired more than radical conservatism. He liked to see a man who could use his head without using the knife, but who never used his knife without using his head. The greatest point of gastro-intestinal ulcer was not the operation; it was the diagnosis. Gastro-enterostomy had been so perfected that it was now a comparatively simple procedure, and for that reason men with surgical tendencies might operate sometimes because they could, and not because they ought to. He would hesitate to operate on a case of gastric ulcer until the patient was seen by a good internist and a good neurologist, on account of the possibility of hysteria and neurasthenia being connected with the case. Cases were cited in point.

Dr. E. F. Root, of Salt Lake City, said it ought to be made plain to the general practitioner that ulceration of the bowel was very much more frequent than was previously supposed. General practitioners, men who were not doing very much surgery, not seeing the actual condition, were liable to have a very vague impression or idea of what was going on within the abdomen. If gastro-intestinal ulcer was diagnosed, it should be dealt with surgically as soon as possible.

Dr. R. C. Coffey, of Portland, Ore., said that these ulcers were the seat of cancer in a very large proportion of cases. We had also learned that ulcer and cancer occurred in the same location. We had learned by observation that this location was where the gastro-intestinal contents were detained for some reason or other. Oehsner had been working on the duodenum, and he thought that the duodenum was one among other locations for ulcer. We rarely saw ulcer at that point until we reached the cecum. A frequent seat for cancer was the cecum. Fecal matter was detained here for a while, then it passed over until it reached the sigmoid. Very rarely was cancer found at the splenic flexure, at the hepatic flexure, or in the transverse colon. The next frequent point for ulcer and cancer was the sigmoid; next the rectum.

Dr. Niles, in closing the discussion, said that the first and most important step in our progress in this line of medicine was to realize the frequency of ulcer and to diagnose the acute pathology. The means of treating it would be taken up later.

(*To be continued.*)

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Book Reviews.

The Medical Diseases of Egypt. By F. M. Sandwith, M.D., F.R.C.P., Consulting Physician to H.H. the Khedive and to Kasr-el-ainy Hospital, Cairo; Lecturer at the London School of Tropical Medicine; Knight of Grace of the Order of St. John of Jerusalem; Membre de l'Institut Egyptien, etc., and formerly vice-director of the Sanitary Department of Egypt. Part I. London: Henry Kimpton. 1905.

In his preface Dr. Sandwith says: "While writing, I have tried to think of the needs of three classes of possible readers, — the Egyptian student of medicine; the newly-appointed English doctors who are suddenly placed in positions of responsibility in Egypt, without any knowledge of what sort of diseases they are likely to meet with among the natives; and the large and increasing number of colleagues in Europe and elsewhere who are interested in the behavior of medical diseases in foreign countries." In thus writing a systematic book upon medicine as seen in Egypt, Dr. Sandwith has succeeded admirably in producing a volume of great interest, at least to the third class of his readers, and one which bears the distinctly personal impress of a close observer of wide experience. The present volume deals with the infectious diseases. The introductory chapter on the Medical History of Egypt is of such interest that it might well have been extended.

The second part is to complete the infectious diseases and begin those of the nervous system.

A Treatise on Surgery. By George R. Fowler, M.D., Examiner of Surgery, Board of Medical Examiners of the Regents of the University of the State of New York; Emeritus Professor of Surgery in the New York Polyclinic, etc. Two imperial octavo volumes of 725 pages each, with 888 text illustrations and 4 colored plates, all original. Philadelphia and London: W. B. Saunders Co. 1906.

Volume I of this work, the subject of this review, is a book of 722 pages supplemented by 398 text illustrations and 5 colored plates. The author, whose surgical literary work is well known, has endeavored to bring together the most recent and improved methods of surgical practice. As a necessary preliminary to this the fundamental principles of surgery as a science are set forth.

The first part of Volume I is, therefore, chiefly devoted to the subject of "General Surgery." This includes inflammation (under the etiology of which subject bacteriology is treated); injuries and diseases of separate tissues; gun-shot injuries; acute wound diseases; chronic surgical affections; tumors; a section on laboratory aids to diagnosis and prognosis (which is believed to be especially valuable owing to the increasing importance of hematology, urinology and similiar subjects); surgical operations in general, *i. e.*, general technique, including a description of instruments and their uses; surgical anesthesia; operative technique on individual structures; foreign bodies and, finally, a chapter on bandaging.

The second and remaining part of the work is devoted to regional surgery classified anatomically, of which the remaining pages of Volume I describe the surgery of the head, including cranial surgery (both internal and external); jaws; mouth; tongue; ear, and salivary glands, neck and, finally, the thorax.

Volume I is a very attractive volume. It is attractive not only on account of its "personal appearance," if such a term can be applied to a book, *i. e.*, its form, paper, type, illustrations and arrangement of text, but also and chiefly on account of the character of its subject matter. It is written by a surgeon of large experience, one well qualified to write on this subject. He has done his work thoroughly and exhaustively. His list of subjects is quite complete. His classification of them and his arrangement of the text is good. The relative importance assigned to each is personal with the author. Operative surgery as a selected method of treatment receives full, if not predominant, importance. Although the classification is somewhat different no essential subject is omitted. The style is clear and concise. The system of paragraphing of subjects with its heavy type headings greatly assists the reader in comprehending the text or in his search for some special topic. The illustrations are excellent and form a valuable supplement to the text.

The author has apparently appreciated the importance to the modern surgeon of a thorough knowledge of surgical pathology, the principles of general surgery, bacteriology and other laboratory aids to diagnosis. He consequently has devoted a large part of Volume I of this treatise to these subjects. Some of the chapters are more fully presented in books devoted to these especial subjects, *e. g.*, bacteriology; but what in such cases is found in Dr. Fowler's work is a valuable résumé and serves to round out the book into a complete presentation of the surgery of to-day. Of this it is an excellent exposition.

We shall await the opportunity to study the second volume with great interest.

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120 Boylston Street, Boston, Mass.

NURSES IN THE SCHOOLS.

Massachusetts has long held a deservedly high place in relation to the conduct of its schools and the care of the pupils. Medical inspection was formally introduced in 1894, largely through the efforts of Dr. Samuel H. Durgin, then, as now, chairman of the Boston Board of Health. Even as far back as 1891 Dr. J. H. McCollom urged "the careful medical supervision of the public schools, not only for the purpose of detecting mild cases of disease, but also to prevent the return of children who have been ill until all danger from infection from them has passed." The work was difficult of establishment, but now, after twelve years, fifty physicians are regularly engaged in school inspection. This system of inspection has undoubtedly resulted in good, but still leaves much to be desired. At a recent meeting of the Boston School Committee, Dr. G. S. C. Badger, one of a committee of physicians appointed to investigate the general question of hygiene in the elementary schools, made the statement that the Boston system as at present organized is the best in the country on paper, but poor in practice. Theoretically, physicians are expected to visit the schools under their charge and to report and attend to such physical defects or illnesses as may be called to their attention or they may themselves discover. As a matter of fact, this work has not always been adequately done, and a further development of the system seems imperative if the full benefit of medical inspection is to be attained.

At the meeting of the school committee to which we have alluded, this matter was discussed at length with special reference to the employment of nurses in the schools to supplement the work of the physicians. The development of nursing during the past few years has brought the nurse into an increasingly prominent place in relation to the treatment of disease. In many ways a nurse can accomplish more than a physician, not only in the treatment of many disorders, but also in discovering them. This is particularly true in the schools. Although it would not be maintained that a nurse should make a definite diagnosis in an obscure case, it does not follow that she may not be able to discover those children who are ailing, far better than a physician who at best can devote but a small portion of his time to the work. Many persons of authority, physicians and others, spoke at the meeting, and the opinion was universally expressed that the time has come for the appointment of nurses to aid in the work of school inspection. The arguments used were essentially those we have just stated and, further than this, it was very correctly pointed out that adequate school inspection does not imply merely the discovery of illness or defect in the children at the schools, but also care of those children and instruction to their parents when at home. This work naturally could best be performed by trained women and constitutes a further cogent argument for their systematic employment in the schools.

As a general proposition there can be no doubt that the care of the children in the public schools of a great city, both morally and physically, is a provision for the future and a piece of good political economy. The only argument that might justifiably be used against the employment of nurses in addition to the employment of physicians is the added burden of expense which must ultimately fall upon the taxpayers. In this particular matter, however, we are inclined to think that a substitution of nurses for physicians might well be undertaken as the former become experienced in their work. Physicians must be the final court of appeal, but we have no doubt that women of intelligence and devotion could accomplish satisfactorily much of the work which now devolves upon the physicians and which, experience has shown, for various reasons, has not always been thoroughly done. Any unnecessary public expenditure is naturally to be deplored, and the tendency to push a movement essentially good to extremes should be most carefully guarded against in the management of municipal problems. At the same time our feeling is that in this particular question of school inspection no such danger is to be feared, provided those having the matter in charge proceed slowly along the lines suggested in the meeting referred to above and which we have attempted to outline here.

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PROFESSOR JANET'S VISIT TO BOSTON, AND PSYCHOTHERAPEUTICS.

After a number of active weeks spent in Boston, Professor Janet has recently left for Baltimore and New York preparatory to his return to Paris. During his stay in Boston he has given a series of fifteen lectures, primarily intended for the students of the Harvard Medical School, on the subject of hysteria, abstracts of which we have been and are still publishing in this Journal. These lectures were given in English, and should not be allowed to pass into history without a word of comment. As an exposition of the modern theory of hysteria, and as a lucid presentation of the extraordinarily difficult problems which this great neurosis involves, these lectures will not soon be surpassed. Representing as he does the school established by Charcot, his views regarding hypnotism and suggestion may not be universally accepted, but no one who heard his presentation of the subject could fail to be impressed with the reasonableness of his explanations, and more than this, with the extraordinary progress which the last few years have seen in the development of our knowledge regarding the obscure phenomena associated with the hysterical neurosis.

In addition to this course of lectures, Professor Janet also gave eight lectures in French in the Lowell Institute course on the general subject of psychotherapeutics. In spite of the fact that he used his own language, an appreciative audience attended this course, which was marked throughout by that rational and sane temper which is absolutely indispensable for the physician speaking on such topics at this time of popular and uncritical interest in the general subject. The lectures were characterized by a coldly critical attitude toward the various methods of so-called mental therapeutics, and at the end the conclusion was reached that we are as yet far from a science in this difficult field, but are rather collecting facts which in the future may be useful. Professor Janet's charm as a lecturer will not soon be forgotten by those who were privileged to hear him.

To those interested in the great problem of psychotherapeutics the present time must be regarded as one of peculiar significance. The question presents itself as to what is gained by the popular or semi-popular exposition of the problems involved; and whether the public, as represented, for example, by the daily press, is really benefited by an exposition of these matters, however sanely it may be presented. Misinterpretation almost inevitably follows, and a movement is unjustly stigmatized when it is altogether desirable that it should receive the earnest support of intelligent people. In this particular matter of psychotherapeutics it is, in general, evident that the medical profession at large should primarily be educated in order that results may spread from them to the laity with the smallest possible amount of misunderstanding. Were Professor Janet's lectures, or those of any other person of authority on a similar subject, received by the people at large as they were meant to be received, no harm could result; but unfortunately this is not possible as yet in a subject so vague and inadequately understood as that of psychotherapeutics. With this attitude of mind we are very sure Professor Janet would be in complete agreement. There is danger at the present time, as he continually implied, in exploiting in a public way a subject about which the public is extremely inquisitive and equally ignorant.

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AVENUE LOUIS PASTEUR.

Since the publication of our last issue, the avenue leading to the new buildings of the Harvard Medical School has become an assured fact through the action of the Boston Street Commissioners. This may also now be said for its name, which, very naturally, gave rise to an animated discussion on the part of those representing various interests. A reaction against the use of the name of the French scientist, Pasteur, took somewhat definite form. The name is in general a good one, from the point of view of the medical profession particularly, and those who see in the new avenue a close relation to the medical buildings to which it is to form the approach. On the other hand, objections were raised on the ground that the street should commemorate an American investigator rather than a Frenchman, if, indeed, it was desirable to perpetuate thereby the name of any individual.

We think the objection which was raised against the name Louis Pasteur Avenue, or Avenue Louis Pasteur, was well taken. Certainly, if Pasteur were to be commemorated in this way, the addition of his Christian name added neither dignity nor distinction. We had hoped if the name Pasteur was finally chosen, and we see no good reason why it should not have been, that it would stand simply as Avenue Pasteur without further encumbrance. After all, the matter of a name is of somewhat secondary importance, provided it be sufficiently significant for the function which the avenue is designed primarily to subserve, but we do feel called upon to utter our protest against the wholly unnecessary prefix Louis.

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MEDICAL NOTES.

Dr. John Henry Bell. — The name of Dr. John Henry Bell, of Bradford, England, whose lamented death occurred early in September, will be remembered particularly in association with his work on the origin and prevention of woolsorters disease.

Retiring Pensions for Cornell Professors. — It is announced that five professors of Cornell University have been selected as the recipients of retiring pensions from the Carnegie Foundations. Among them are Dr. Austin Flint, Professor of Physiology, emeritus, and George C. Caldwell, Professor of Chemistry, emeritus.

New York Neurological Association.— A special meeting of the New York Neurological Society will be held Nov. 28, at the Academy of Medicine, at which Dr. H. S. Frenkel, of Heiden, Switzerland, will speak on "The Medical Treatment of Nervous Disease," and Prof. Pierre Janet on "Disturbances of Vision in an Hysterical Patient Produced by Exaggeration of Binocular Association." Professor Janet will speak in French.

The National Academy of Sciences. — The National Academy of Sciences has been holding its sessions this week at Harvard Medical School. This association represents the best in scientific investigation in this country. It was established through act of Congress and serves as a constant assistant to the government on the many problems of economic or other nature which have national interest.

Evening Clinics for Consumptives in Philadelphia. — The Philadelphia Clinic for Home Treatment of Chest and Throat Diseases, 519 S. 15th Street, Philadelphia, has recently opened evening clinics, in addition to the day clinics which have been running since last March, for free treatment to the 3,000, among the 9,000 consumptives living in this city all the time, and who annually earn over $1,000,000, but who, without medical care, will in a few years become unfit to work; and in all probability many of them will have to be maintained in hospitals at an added expense of another $1,000,000, making a total loss in wages and in cost of maintenance of over $2,000,000, a year. The object is to lighten the struggle of these people during this trying period of their life, to help save their wages, and to forestall the danger of becoming public charges. Dr. Frank Read is president of the Board of Managers, and Dr. Thomas J. Mays is Medical Director of this institution,

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Nov. 21, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 51, scarlatina 19, typhoid fever 17, measles 11, tuberculosis 24, smallpox 0.

The death-rate of the reported deaths for the week ending Nov. 21, 1906, was 17.06.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Nov. 17, 1906, was 203, against 169 the corresponding week of last year, showing an increase of 34 deaths and making the death-rate for the week 17.58. Of this number 112 were males and 91 were females; 197 were white and 6 colored; 138 were born in the United States, 64 in foreign countries and 1 unknown; 38 were of American parentage, 143 of foreign parentage and 22 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 59 cases and 2 deaths; scarlatina, 17 cases and 1 death; typhoid fever, 46 cases and 3 deaths; measles, 6 cases and 0 deaths; tuberculosis, 38 cases and 18 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 29, whooping cough 1, heart disease 30, bronchitis 2 and marasmus 5. There were 9 deaths from violent causes. The number of children who died under one year was 39; the number under five years 53. The number of persons who died over sixty years of age was 47. The deaths in public institutions were 68.

There were two cases of cerebrospinal meningitis during the week; no deaths.

Annual Meeting of the Boston Medical Library. — At the annual meeting of the Boston Medical Library, held Tuesday, Nov. 13, the following officers were elected: President, George B. Shattuck, M.D.; vice-president, Theobald Smith, M.D.; secretary, Oliver F. Wadsworth, M.D.; treasurer, William H. Prescott, M.D.; librarian, John W. Farlow, M.D. Committee on Library and Finance: Walter L. Burrage, M.D.; Frederic J. Cotton, M.D. Committee on Medical and Social Meetings: Robert B. Osgood, M.D. Committee on Membership and Elections: Francis P. Denny, M.D.; Robert H. Vose, M.D. Dr. David W. Cheever, who declined re-election as president, had filled that office most serviceably and acceptably since 1896. He had previously been vice-president from 1890 to 1896. The presidents of the Medical Library since its organization in 1875 have been: Dr. Oliver Wendell Holmes, 1875–1888; Dr. Richard M. Hodges, 1888–1890; Dr. Francis Minot, 1890–1896; Dr. David W. Cheever, 1896–1906.

NEW YORK.

Columbia University. — At the last monthly meeting of the trustees of Columbia University, held on Nov. 5, Frederick A. Goetze was appointed dean of the Faculty of Applied Science. Among the gifts to the University announced were $3,440, from anonymous donors, to provide additional clinical facilities for students in the medical department, and $500 from H. P. Wertheim to purchase instruments and apparatus for the Sloane Maternity Hospital. On this occasion the honorary degree of Doctor of Science was conferred upon Sir William Perkin, the distinguished English chemist, who has recently been the recipient of much attention in New York and other cities. In presenting him for the degree Prof. Charles F. Chandler spoke of him as one " whose discoveries, at the age of eighteen, constituted the beginning of a new epoch in the history of chemistry."

An Innovation at the Academy of Medicine. — The fifty-ninth anniversary of the New York Academy of Medicine was celebrated on the evening of Nov. 15. On this occasion, Dr. Roswell Park, of Buffalo, delivered an address on "Medicine and Surgery in Classic Art and Satire," which was profusely illustrated with lantern slide copies of pictures in all the principal galleries of Europe. Afterward, there was a reception, and the evening's entertainment was concluded with dancing. This was a decided innovation for the Academy, but it seemed to be a popular one. At all events, none of the portraits of the grave and reverend seniors hanging upon the walls came down from their frames to protest against such unwonted frivolity.

Annual Meeting of St. John's Guild. — The annual meeting of St. John's Guild was held on Nov. 13. The report of the work of the year showed that during the past summer a greater number of patients than ever before had been cared for on the floating hospital, and at the Seaside Hospital at New Dorp, Staten Island. It was announced that, for the first time, the latter institution would be kept open all through the winter as a convalescent hospital for women and children. During the past season the number of patients admitted to the Seaside Hospital was 2,591, and, although only the more serious cases are taken there, but 97 deaths occurred. The treasurer's report stated that the receipts of the guild for the year were $87,079, and that the disbursements amounted to $81,892.

Hospital Saturday and Sunday Association. — The board of trustees of the Hospital Saturday and Sunday Association recently held a meeting to discuss plans for the collection of 1906. Last year the amount collected was $95,000, and it is hoped that this year it will exceed $100,000. One member stated that he had been authorized by two persons to say that all contributions in excess of $100,000 would be duplicated by them up to $5,000. Isaac Guggenheim then announced that he would duplicate all gifts above $105,000 to the extent of another $5,000.

Tenement House Act. — The first case having to do with the New York Tenement House Act of 1901 to come before the United States Supreme Court, was decided in Washington on Nov. 12, in favor of the city of New York. This case, which bore the title of Katharine Moeschen against the Tenement House Department, grew out of the attempt of the city authorities to compel the removal of a sink connected with a tenement house in East 39th Street, which Mrs. Moeschen owned. Resisting this order, she contended that the house was in good sanitary condition and that the law was invalid because it was made specifically applicable to New York City, and not to a class of cities, and because its enforcement would entail the appropriation of property without due process of law. The effect of the decision in this instance, which was made a test case, is, naturally, to sustain the constitutionality of the law.

Elderly Twins. — Jacob Steen, who died at Amsterdam, N. Y., on Nov. 12, in his ninety-first year, and his brother Walter, who lives in Syracuse, are said to have been the oldest twins in the United States. They were born in the town of Florida, Orange County, N. Y., on May 19, 1816, and Jacob Steen and his wife, who survives him, celebrated their sixtieth wedding anniversary three years ago.

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Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
Nov. 3, 1906.

1. * **Edsall, D. L.** *In Regard to Exposing Patients to the X-Ray.*
2. * **Davis, N. D.** *The Effects of Pericarditis on the Heart.*
3. * **Anders, J. M.** *Angina Pectoris, True and False.*
4. * **Herrick, F. C.** *Obstruction of the Common Bile Duct Due to Cancer.*
5. * **Garceau, E.** *Tuberculosis of the Urinary Tract in Women.*
6. * **Petersen, R.** *Urinary Incontinence.*
7. **Reynolds, E.** *Conservative Surgery of the Ovaries.*
8. **Cannaday, J. E.** *Conservatism in Surgical Treatment of Tubes and Ovaries.*
9. **Sheldon, J. G.** *Relation between Appendicitis and Gallstones.*
10. * **Jampolis, M.** *Intraperitoneal Injections of Saline Solution in Intraperitoneal Hemorrhage.*
11. **Franz, S. I.** *The Functions of the Association Areas (Cerebral).*
12. **Salant, W.** *The Influence of Alcohol on Metabolism of Hepatic Glycogen.*
13. **Bloodgood, J. C.** *Early Recognition of Malignant Tumors.*
14. * **Osborne, O. T.** *Therapeutic Uses of Thyroid Preparations.*
15. ***Waugh, W. F.** *Solanin.*
16. * **Crile, G.** *Direct Transfusion of Blood in Treatment of Hemorrhage.*

1. Edsall calls attention to the fact that the x-ray may produce profound, even dangerous, constitutional effects, and therefore should not be used even for diagnosis except after proper consideration of its dangers and with due precautions in manner of exposure. Aside from its more remote possible effects, such as sterility and nephritis, it exercises a marked action on metabolism, increasing tissue destruction as evidenced by increased nitrogen excretion, particularly in the form of uric acid, purin bases and phosphates. This action affects especially the bone-marrow, spleen and lymphoid tissue, much more than other structures; its effects may be clinically useful or harmful. In three cases the author has seen patients rendered profoundly ill after one exposure, two of them with fatal results. Thus he urges that, like anesthesia, the x-ray should be used only for sufficient reason, with all precaution to protect the body from unnecessary exposure. In three classes of cases it is especially to be avoided: (1) In kidney diseases, (2) in toxemias, (3) in severe anemias. In leukemia and in some other disorders of metabolism its action may do good; promising results have been obtained in unresolved pneumonia.

2. Davis summarizes the subject of pericarditis as follows: The fibrinous form shows typically pain or discomfort, tenderness and friction. The most constant symptom is tenderness. If the exudate is thick, friction may be absent, the apex undiscoverable, the heart dullness enlarged and the heart sounds distant. When fluid is present the sounds are also weak, the dullness is increased, and in addition shifts with change of position, giving an obtuse cardio-hepatic angle when the patient is in the erect posture. There may be dullness and tubular breathing in the lower part of the left interscapular region. The x-ray is of assistance in the diagnosis. Pericardial adhesions when slight and about the base cause no symptoms or signs. Extensive adhesions involving the apex give systolic retraction and diastolic projection, diastolic collapse of the cervical veins and, most important, an unchanging shape of the precordial dullness throughout respiration. Pericarditis is hemorrhagic or purulent in about one sixth of the cases; these are almost always fatal. One twelfth are tubercular. In one third there are adhesions and in one twelfth total synechia.

3. Anders' description of angina pectoris serves only to emphasize our ignorance of the nature of the disorder, beyond the knowledge that it is almost invariably accompanied by coronary sclerosis and occurs principally in persons of impaired nervous vitality. Pseudo-angina is also described, and two cases are reported where an apparent pseudo-angina has developed into a true angina.

4. Herrick notes from the 16 reported cases of cancer of the ampulla that jaundice occurred in all, whereas pain was mentioned in but three and in these was of an aching or general abdominal character. He concludes that in painless rapidly deepening jaundice, after two to four weeks an exploration is indicated.

5. Garceau's treatment of tuberculosis of the urinary tract in women is as follows: In earliest and in very advanced cases hygiene and climate are most important; rest and diet are regulated and urine made bland as possible. In the early stages of vesical tuberculosis local treatment does no good; in the second stage, however, with beginning ulceration, much can be accomplished, mainly by two drugs, corrosive sublimate and nitrate of silver. The former is used in daily instillation of 30 to 40 drops into the bladder of a solution first 1:5000, gradually increased to 1:500. This may be preceded by cocaine. At the same time ulcers are treated, as often as once a week, with the nitrate of silver stick, through a small cystoscope, the first application being made under ether, and subsequent ones under cocaine. In more advanced cases with secondary infection, the whole mucous membrane of the bladder should be cauterized with the nitrate under ether. Where this treatment fails, an infrapubic cystotomy will give instant relief. Renal tuberculosis in the earliest stages may be treated by climate, but if more advanced the organ should be removed; a moderate degree of pulmonary tuberculosis does not contra-indicate this. Among the author's 18 cases there were 3 absolute cures, and a majority showed marked improvement after treatment.

6. Petersen maintains that incontinence of urine in women is usually due to a vesico-vaginal fistula. He has treated the condition by establishing a recto-vaginal fistula, and closing the introitus vaginæ, the urine then being retained by the anal sphincter.

10. Jampolis advocates intraperitoneal saline infusion in cases of intraperitoneal hemorrhage not associated with infection. The effects claimed for this are counteraction of shock, increased rapidity of reabsorption of blood and prevention of adhesions, which would otherwise form from the organization of clots, in cases where laparotomy is not performed. A series of experiments on dogs is reported.

14. Osborne mentions the uses of thyroid extract in diseases other than myxedema and cretinism. Obesity and scanty menstruation may be benefited. Striking results are reported in epilepsy, in puerperal eclampsia and in uremic convulsions.

15. Waugh describes the toxic, physiologic and therapeutic properties of solanin, the alkaloid of various species of the *Solanaceæ*, and compares it with the bromides as a depressant neurotic agent. It acts less on the brain and more on the cord than the bromides, and does not, like them, produce acne or seriously interfere with the vital and sexual functions or disturb digestion. He cites various authorities as to its therapeutic value as an anesthetic, sedative and antispasmodic, but criticises the recommendation of its use in pulmonary affections, as it reduces the sensibility of the respiratory mucosa and in large doses tends to produce pulmonary edema. It seems to be a promising remedy in epilepsy, and he has had favorable reports from those who have used it in that disease. With the chemically pure alkaloid he has found the average dose to be one twelfth of a gr., and has not found it necessary to exceed one gr. *per diem.* If an overdose should be given the first symptom would be an acrid burning

sensation in the throat, followed by oppression of respiration. Poisoning should be treated by washing out the stomach, the administration of strong tea or coffee, sustaining the temperature and strength, by heat externally, with sufficient hypodermic doses of strychnia. The effects are quickly manifested, and not very enduring. For children, the doses can be regulated in the usual manner. In any case it is necessary to push the drug till unmistakably constitutional effects appear, the remedial action lying close to the limit of beginning toxic action.

16. Crile reports extremely striking results in 6 clinical cases of direct transfusion of blood from the radial artery of a human donor, through an anastomosis, into the basilic vein of the donee. In all cases patients were almost exsanguinated, but were promptly revived, and their condition was in every way greatly improved directly after the transfusion. Hemogloblin and red counts were approximately doubled. In no case did the transfused blood cause hemolysis of the original blood of the patient or undergo hemolysis itself, since no laking of blood or hemoglobinuria followed. The donors were kept from their work only on the day of the transfusion.

Bulletin of the Johns Hopkins Hospital.
November, 1906.

1. Eliot, C. W. *The Future of the Medical Profession.*
2. Welch, W. H. *The Unity of the Medical Sciences.*
3. * Jacobs, H. B. *The International Congress of Tuberculosis, Paris, 1905.*
4. Steiner, W. R. *Governor John Winthrop, Jr., as a Physician.*
5. * Lyman, David R. *The Advantages of Local Sanatoria in the Treatment of Pulmonary Tuberculosis.*

3. Jacobs touches briefly upon a number of the points of discussion at the congress in Paris. (1) A general feeling was evinced that tuberculous cattle must be considered a source of danger to man. (2) Mongour reported a study of 440 cases of pulmonary tuberculosis in married persons which showed that in only 16 instances, or 4%, had the partner in marriage become infected. (3) The great attention given by the French to treatment of the pretuberculous stage was worthy of note. (4) The possible danger from cats and dogs was mentioned. (5) The protection of children against infection is conducted both by care of hygiene at home and at school, and by the removal of children from infected families to special institutions. (6) The aim of sanatoria in France was contrasted to that of ours in considering less the welfare of the individual patient and more the protection of the community.

5. Lyman urges the advantages of the local sanatorium, on the ground that in them efficient treatment can be given and that patients will be able and willing to enter sooner and to stay longer on account of the proximity of their homes. Moreover, the friends of the patient, being able to visit these institutions, will be both stimulated to help the patient and educated to prevent the spread of the disease.

Surgery, Gynecology and Obstetrics.
October, 1906.

1. * Schrager, V. L. *Lateral Aberrant Thyroids.*
2. * Lewis, D. D. *The Pathological Anatomy of Exophthalmic Goitre.*
3. Webster, J. C. *A Rare Case of Hermaphroditism.*
4. Webster, J. C. *A Specimen of Foetus Amorphous Anideus.*
5. Webster, J. C. *Affections of the Eye in Relation to Pelvic Disorders.*
6. Webster, J. C. *A Case of Abortion in a Myomatous Uterus. Myomectomy and Removal of the Uterine Contents Carried out by Abdominal Section.*
7. * Kohn, A. D. *Appendicitis Larvata.*
8. Findley, P. *Primary Malignant Tumors of the Infant Uterus.*
9. Rowan, J., and Wells, H. G. *The Healing of Suppurative Appendicitis with Calcification.*
10. * Neff, J. M., and Schrager, V. L. *Injuries to the Urethra. Traumatic Strictures and their Rational Treatment.*
11. * Murphy, J. B. *The Clinical Significance of Cervical Ribs.*
12. Thompson, G. F. *Congenital Hypertrophic Pyloric Stenosis of Infants; with Report of an Operated Case.*
13. Reed, E. N. *A Case of Ischuria in a Patient with Retroflexioversion of the Gravid Uterus.*
14. * Smythe, F. D. *Report of a Case of Torsion of the Greater Omentum, Intra-Abdominal, with Remarks.*
15. Lewis, D. D. *The High Operation for Varicocele.*
16. Lewis, H. F. *Management of Breech Presentation.*
17. Pomeroy, R. H. *A New Hydrodynamic Bag Cervical Dilator.*
18. * Mosetig-Moorhoff, R. A. *The Elimination of Cavities in Operative Wounds.*

1. Lateral aberrant thyroid tissue is of different embryologic origin, and has different clinical features from that arising from the thyro-glossal tract. This tissue has the structure of either the normal or pathological thyroid, and is found as one or more bodies, situated a definite distance on the side of the neck from the normal thyroid gland. Their lateral displacement is usually limited to the line of the carotid artery. Increase of size at puberty, fluctuation in size during menstruation and tendency to auto-displacement and cyst formation are given as specific symptoms. The tumors are usually unilateral. The size, if solid, is seldom greater than a small mandarin orange; their growth is slow and not associated with subjective symptoms; they may be single or multiple; their consistency is soft, even if not cystic; the surface is smooth; and they are usually found in women, often in those showing derangement of menstruation. An aberrant thyroid which has attained some size, which produces subjective symptoms, shows a tendency to cyst formation and is associated with a normal thyroid in the normal location, should be removed by operation. The diagnosis having been made, thyroid tablets should precede operation in the hope that the size will decrease.

2. The conclusions of Lewis's investigation are as follows: (1) Histologically, primary exophthalmic goitre is characterized by an excessive epithelial proliferation with the formation of large irregular follicles, which are filled with papillary ingrowths. The epithelial cells become cylindrical, and, histologically, the processes of secretion do not differ from those described by Anderson in the normal gland, stimulated to increased secretion by injections of pilocarpine. The same histological changes have been described in the gland when undergoing compensatory hypertrophy. The colloid, when present, is finely granular and stains faintly, although in some sections heavily staining colloid may be found. The colloid is formed both as a secretion and as a product of degeneration. (2) The goitre in the secondary cases does not differ from the simple colloid or parenchymatous goitre histologically. (3) The clinical course of the secondary cases is less severe and its prognosis better. (4) Lewis suggests that the primary cases may be associated with dysthyroidism, and the secondary with hyperthyroidism.

7. Kohn reports several cases which failed to present symptoms referable to the appendix but which were relieved by appendectomy. Such cases are classed as "masked appendicitis," or appendicitis larvata.

10. End-to-end suture of the urethra after excision of the stricture is followed by excellent results. A lack of tissue of over 3 cm. makes mobilization of the urethral stumps necessary before approximation is attempted.

11. In the majority of cases the presence of a cervical rib gives no symptoms. When they occur they may be classed as (1) vascular and (2) nervous. The vascular symptoms are all due to involvement of the subclavian artery, the vein not being involved. They are such as a pale hand, cold arm and hand, and weak pulse, sometimes becoming smaller at each inspiration. Subclavian aneurism is not very infrequent. The main nervous symptoms are tingling of the hands and fingers, sensory disturbances of varying degrees and also motor derangements. The rib with its periosteum should be removed by operation. Unless aneurismal dilatation is great, it should not receive special attention.

14. A case of intra-abdominal omental torsion is reported in which recovery followed removal of the infarcted mass. The points which serve to differentiate this condition from that of appendicitis are emphasized.

18. After minute care in scraping and cleaning bone cavities so that a complete, sound surface is presented,

Mosetig-Moorhoff advocates filling such cavities with a mass of iodoform, spermaceti and Sesamoil which, though fluid at about 50 c. (the temperature at which it is used), becomes solid at the body temperature. Since the cavity must be thoroughly dry before the mass is poured in, a tourniquet is always used if possible. With proper technique the healing of bone cavities thus treated should always be by first intention. The iodoform-plombe is merely a substitute, a *locum tenens*, remaining in the cavity until either absorbed by granulations or partially absorbed and partially expelled.

The Lancet.

Oct. 27, 1906.

1. * Osler, W. *The Harveian Oration on the Growth of Truth, as Illustrated in the Discovery of the Circulation of the Blood.*
2. Allbutt, T. C. *Words and Things.*
3. * Gossage, A. M. *On Some Aspects of Dilatation of the Heart.*
4. * Turton, E., and Parkin, A. *A Series of Cases Treated by the Injection of Bacterial Vaccines.*
5. Kellas, A. M., and Wethered, F. J. *The Detection of Sugar in Urine and its Significance in Connection with Life Insurance.*
6. Bronner, A. *Notes on an Unusual Case of Thrombosis of the Lower Part of the Lateral Sinus of Aural Origin.*
7. Gillan, J. *Notes on a Case of Pericarditis following Head Injury. Paracentesis.*
8. Sommerville, D., and Walker, J. T. A. *On the Disinfectant Properties of Hypochlorites of Sodium and Magnesium as produced by Electrolysis.*
9. Blackett, E. J. *A Case of Poisoning by " X. L. All Vaporizing Fumigator."*

1. Published also in Boston Medical and Surgical Journal, Nov. 1, 1906, p. 491.

3. The first part of this paper is a detailed consideration of the physiology of the heart muscle, illustrated by sphygmographic tracings, giving the theory of the formation of systole and extra-systoles. From this as a starting point, the writer considers abnormal conditions, valvular incompetence and muscular weakness of the heart muscle, and the resulting effect on the cardiac rhythm. The effects of drugs, depressant and stimulant, and of other natural agents, fatigue, excitement, etc., are considered. The article is a detailed one and to those especially interested in this subject should be of value.

4. The authors used have the method of injecting bacterial vaccines along lines determined by the opsonic index, as advised by Wright, in a series of cases, tubercular and non-tubercular, in their private practice. They tried to isolate in every case not only the particular organism or organisms causing the disease, but also the particular strain of organism. This could not be done in every case, but those cases did best where it was done. They attribute much of the failure in tuberculosis work to the fact that Koch's T. R. did not fit the particular strain of tubercle bacillus in their cases. One important feature they emphasize is the use of the injection of tuberculous vaccines as a prophylactic measure in cases not actually tuberculous, but by contiguity, occupation or inheritance threatened with it. They report cases with improvement in infections with Bac. coli, with staphylococci, in tuberculosis of the skin, kidneys, lungs, intestines, bones. Four showed no improvement. The cases of pulmonary tuberculosis are of especial interest as there was no concurrent open air or forced feeding treatment; they kept at their work in almost every case. On the whole the results are very satisfactory. The paper is worthy of careful study.

British Medical Journal.

Oct. 27, 1906.

1. Osler, W. *The Growth of Truth; as Illustrated in the Discovery of the Circulation of the Blood.*
2. Goodall, E. *The Hospital Treatment of Curable Cases of Mental Disorder.*
3. Bowser, J. E. *Some Principles of the Treatment of Fractures.*
4. Klein, E. *Note Concerning the Bacterioscopic Analysis of Excremental Pollution.*
5. Lewis, T. *Note on the Estimation of Blood Pressure.*
6. Fotheringham, J. T. *The Present Status of Military Medical Arrangements in Canada.*
7. Barker, L. F. *Amino-Acids and Metabolism.*
8. * Chittenden, Halliburton, Folin, Hutchison, Ramarao, and Grant. *A Discussion on Over-nutrition and Under-nutrition.*
9. * Aschoff, Mackenzie, Erlanger, Gibson, and Morrow. *A Discussion on Some Aspects of Heart Block.*
10. Barr, J. *Case of Stokes-Adams Disease.*

8. In this article Chittenden gives a brief résumé of his experiments and the conclusions drawn from them, published elsewhere at an earlier date. He again calls attention to the error in supposing that any dietary standard of the amount of proteid, etc., necessary, based on no matter how large figures, must be necessarily a true standard, because after all, with most of us, eating and drinking three times a day is a matter of habit and inheritance and may be and is much greater in amount than is really necessary. He goes on to describe his experiments on athletes, soldiers and professional men at Yale, and concludes that, in his opinion, more disease and suffering is caused by overeating than by the abuse of alcohol.

9. Aschoff reports the results of work done by him and his pupil, Tawara, on the anatomy and pathological and normal histology of the heart muscle, especially of the bundle of His. The Leipzig school, led by Krehl and Romberg, had explained the often unaccountable weakness of hypertrophied heart muscle, by inflammatory and degenerative changes; Aschoff and Tawara in a study on 112 hearts could not justify this. On studying the inter-auricular ventricular zone, however, the normal anatomy and histology of which he describes in detail, he made some interesting discoveries. The muscle fibers here are distinctly different from those elsewhere in the heart, containing less sarcoplasm, and interlacing more intricately; they send out conducting fibers through the heart muscle, these fibers corresponding to those described by Purkinje in 1845; these fibers *do not* hypertrophy along with the rest of the heart muscle; inflammatory and degenerative changes here found by him would naturally be of far greater significance than larger lesions elsewhere. He explains the weakness of cardiac hypertrophied muscle along these lines. The paper is a suggestive and valuable one.

In the first part of his paper Mackenzie describes the technique of taking tracings from heart, wrist and jugulars, and their interpretation in cases of heart block, illustrating with numerous sphygmograms. He then describes a case in which by administering digitalis he could bring on a condition of heart block, and the patient himself could induce a typical attack voluntarily by swallowing.

Erlanger reviews the work on heart block and the auriculo-ventricular zone from the beginning to the present. He goes over his own work on this subject on animals and discusses the theories and explanations bearng on it.

Deutsche Medizinische Wochenschrift, No. 43.

Oct. 25, 1906.

1. * Böhme, A. *Alimentation with Perhydrase Milk.*
2. * Rolly. *Experimental Studies on the Bacteria of the Large Intestine.*
3. Huismans, L. *A Case of Amaurotic Family Idiocy.*
4. Bradt, G. *On Injuries of the Neck.*
5. Scheib, A. *The Healing of the Wound after Grigli's Pubiotomy.* (Continued article.)
6. * Boesser. *A Modification of the Helmholtz Treatment of Hay Fever.*
7. * St. Schöngut. *The Treatment of Furunculosis of the External Ear and Allied Conditions.*

1. " Perhydrase " milk is milk which has been sterilized by the action of peroxide of hydrogen, the latter being subsequently destroyed by the addition of a ferment, " catalase." Much and Römer have shown that by this method tubercle bacilli are destroyed, while the ferments and antibodies of the milk are not affected. The milk tastes like raw milk and is well taken. Böhme found

that perhydrase milk agreed well with children over three months old, in some cases better than boiled milk. Infants with rachitis improved rapidly.

2. Rolly, in experiments on dogs, found that under normal conditions the flora of the large intestine is specific, the colon bacillus forming 90%. Although sterilized feces form a good culture medium for all bacteria, the growth is limited to certain species. This limitation is not due to the action of the secretions of the large gut, for Rolly found these secretions to be a good culture medium for bacteria. It is due partly to the character and amount of the food residue present, for the colon bacillus flourishes best on carbohydrates, and the introduction of proteid into the isolated large intestine caused an enormous increase of the bacteria of putrefaction. Further experiments apparently disprove the statement of Conradi and others that bacteria in the intestines form products, so-called autotoxins, which inhibit their further growth. Artificial lesions of the large intestine gave rise to a marked change in the flora, showing that a normal state of the mucous membrane is of importance in maintaining normal bacterial conditions.

6. The great scientist Helmholtz, who was himself a sufferer from hay fever, introduced the local use of quinine in this disease. Boesser has obtained good results, using a 1% solution of corticin (a double salt of quinine and caffein) instilled into the conjunctival sac.

7. In the treatment of furunculosis of the external canal gratifying results are obtained by a careful packing with dry strips of sublimated gauze. It is important that the innermost layers do not press against the drum. The relief of pain should be almost immediate, and if this does not occur in a few minutes the packing is probably too tight and needs loosening. The inflammation usually has passed in from five to seven days of such treatment. In the more severe forms of inflammation with abscess and manifestations of erysipelas, in which the above treatment is inappropriate, excellent results, in 33 cases out of 34 treated, were obtained by stasis hyperaemia, brought about by a band encircling the neck. The quick relief of pain is remarkable. The abscess breaks spontaneously and does not need incision.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 43.
OCT. 23, 1906.

1. * FEHLING, H. *Pubiotomy and the Induction of Premature Delivery.*
2. * PASSLER, H. *Acute Tuberculosis of the Intestine with the Symptoms of a Severe Infectious Disease.*
3. * JOCHMANN, G., and ZIEGLER, C. *The Leucocytic Ferment in the Spleen, Lymph Nodes and Bone Marrow in Leukemia and Pseudoleukemia.*
4. * TIEDEMANN, E. *Acute Poliomyelitis with Meningitis.*
5. * NIEFMANN, H., and NIETER, A. *Dysentery among the Insane.*
6. * TRAUTMANN, G. *Erythema Exsudativum Multiforme of the Mucous Membranes, and its Relations to Syphilis.*
7. FRAENKEL, J. *The Cure and Artificial Formation of Pseudarthrosis.*
8. * HERZ, M. *The Treatment of Chronic Heart Diseases with Light and Air Baths.*
9. WATZOLD. *Rupture of the Liver Due to the Bursting of a Superficial Aneurysm.*
10. MENNACHER, T. *A Case of Chronic Lymphatic Leukemia in a Child of Eleven Months.*

1. Fehling considers pubiotomy to be indicated in all cases of narrow pelvis of moderate degree, both flat and where the narrowing is general, in primiparæ. If forceps or version is impossible, pubiotomy should always be preferred to craniotomy. In multiparæ pubiotomy is indicated when there is some reason present contra-indicating Cæsarian section or when during the progress of delivery it becomes imperative to widen the pelvic outlet. Premature delivery in primiparæ with narrow pelves is to be avoided, its domain being in those cases of multiparæ where there is a history of previous catastrophe, such as a stillborn child or severe forceps or perforation operations.

2. Passler reports 2 cases which show that intestinal tuberculosis in the adult may run a course like that of typhoid or sepsis, without localizing symptoms. In both cases staphylococci were cultivated from the blood in small numbers during life, probably owing to a secondary infection of the intestinal ulcers. The lungs showed only slight lesions; examination of the stools for the tubercle bacillus is likely to clear up such difficult cases.

3. In this interesting article, Jochmann and Ziegler give the results of experiments with the ferments of the leucocytes in the leukemias. Normally the bone marrow shows a marked, the spleen a slighter, and the lymph nodes no digestive action. In myelogenous leukemia, pieces of the bone-marrow and spleen showed marked digestive action, while the lymph nodes were active in proportion as they had undergone the myeloid transformation. In lymphatic leukemia, on the other hand, the splenic tumor and the lymph nodes showed no digestive power. The organs from cases of pseudoleukemia showed the same action as normal organs. These findings are in accord with the results obtained by Müller and Jochmann, who found that the blood of myelogenous leukemia contained a digestive ferment, while that of lymphatic leukemia did not. They serve as a support for Ehrlich's theory that the lymphatic and the myeloid cells are specifically different.

4. Tiedemann reports a case of acute poliomyelitis, in which the cerebrospinal meninges were involved, as shown by the character of the fluid withdrawn by lumbar puncture, and the presence of optic neuritis, headache and stiffness of the neck.

5. Out of eight cases of dysentery in a hospital for the insane, Niefmann and Nieter cultivated in seven the paradysentery bacillus A (Hiss-Russell y-bacillus; splits glucose and mannite, but not dextrin). The serum of the patients showed increase in agglutinating power as the disease progressed, finally giving positive results in a dilution of 1 to 800. Infection took place by contact.

6. Trautmann describes, with illustrative cases, erythema multiforme and nodosum of the mucous membranes (mouth, pharynx, larynx) and skin, occurring in late stages of syphilis. The process is not a specific one, but syphilis produces a predisposition to erythema. Specific treatment is not indicated, unless there are florid lesions of syphilis present.

8. Herz has obtained good results in chronic heart disease from the use of air and light baths, properly graduated. With the cool baths a marked increase in the respiration volume is obtained; warm baths accomplish a marked withdrawal of water through the skin, without the discomforts of sweating.

Miscellany.

CARE OF THE FEEBLE-MINDED.

AT the session of the State Board of Charities at Rochester, on Nov. 15, Dr. William L. Russell, chairman of the committee on the study and care of the defective, read a report in which he deplored the lack of sufficient institutions for the care of the feeble-minded. Altogether there were, he said, 2,500 such unfortunates in need of institutional treatment for whom no provision had been made by the state, and he urged the immediate enlargement of the institutions for this class at Rome and Newark. At the present time there were 1,046 inmates in these two institutions, and 1,035 at the Craig Colony for Epileptics. There was also need for increasing the accommodations for the insane. On Sept. 30 last, there were 26,357 patients in the thirteen State Hospitals, while they were fitted for a population of only 24,465. Especially was there need for proper facilities for the care of mental cases pending examination and commitment to the state hospitals. Dr. Robert B. Lamb, superintendent of the State

Hospital for Criminal Insane, at Matteawan, made an address on "Mental Defect and Crime," and Dr. T. W. Salmon, of the United States Public Health and Marine-Hospital Service, read a paper on "The Relation of Immigration to the Prevalence of Insanity in New York State," in which, having stated that the ratio of the insane to the population of the state had increased from 1 to 675 in 1875 to 1 to 294 in 1895, he contended that immigration had contributed most heavily and quite disproportionately to this result. The paper was largely devoted to a consideration of measures which would tend to mitigate the conditions responsible for this prevalence of insanity.

Correspondence.

SOME PARIS HOSPITALS IN 1866.

Salem, Mass., Nov. 17, 1906

Mr. Editor: Your editorial comments (Med. & Surg. Jour., Nov. 15) on the recently issued "History of the Boston City Hospital," for the forty years from 1866, suggest the following somewhat rambling reminiscences of Paris hospitals of that date:

Forty years ago, the very venerable buildings of the Hotel Dieu were connected by a subway and by a bridge over the Seine. Then, as now, the clinics were held in the early morning instead of in the afternoon as in London. Of the seven visiting physicians MM. Piorry and Trousseau are recalled. The second edition of the latter's *Clinique Médicale* had been recently published, a work that is to-day nearly forgotten. The popular surgeon was M. Maisonneuve. He was an early and a lavish user of acid phénique, but his anticipation of Listerism apparently stopped at that stage. For a while he exhausted the air from the stump after an amputation by means of a rubber bag attached to a pump to withdraw *"les matières toxiques."*

Affirming that wire was strong enough for the construction of suspension bridges, he used it, with an *écraseur*, in amputating the breast and limbs. Arrow-like caustic points he employed in removing mammary and other tumors, despite the agony they caused. A typical scene is recalled: On a characteristic dark and chilly winter morning, with the windows of the operating room open, while students (many with their hats on their heads and the while smoking) crowded around the table, an ovariotomy was done. The patient did not survive many days. M. Cusco, a surgeon in the comparatively new Lariboisière Hospital, was most painstaking. Later he achieved a reputation as an oculist.

In the old Pitié were MM. Gosselin and Richet. One morning Sir J. Y. Simpson, Bart., endeavored to have M. Gosselin try acupressure. He said Mr. Petrie of Aberdeen, who employed it largely, told of a little child, who, two hours after having had a leg amputated, had withdrawn the needle and with no bad result. M. Nelaton was surgeon at the cliniques. He acquired not a little reputation by finding the bullet in Garibaldi's foot by means of a porcelain tipped probe (said to have been suggested by a clever instrument maker). His manner was most kindly and sympathetic, and he was an adept operator. Naturally his clinic was largely attended.

M. Velpeau was still an attending surgeon at the Charité —a short, slight, clerical-appearing man, and apparently fond of chaffing with his students. M. Civiale was another venerable surgeon at the Necker, and he was ever ready to allow us to look through his endoscope. The clinique of M. Hardy at St. Louis was largely attended, the best in Paris for the study of diseases of the skin.

Ether was rarely used as an anesthetic in Paris forty years ago, and many operations were performed without the use of chloroform. A ward is recalled at the Beaujon in which one morning the surgeon (professor of anatomy) applied the actual cautery to several shrieking patients who were the victims of white swelling. The younger Desmarres, one afternoon, enucleated an eye for a mere baby. It was strapped upon a board and the eye was removed without an anesthetic. Fortunately, the little patient fainted before the completion of the operation.

Dr. R. Liebreich had recently opened a private hospital in the familiar Rue Saint André des Arts. His *Atlas d' Ophthalmoscopie* had shortly before brought him before the public. One day he performed his operation for strabismus before Sir William Bowman, Bart., when his hands were far from steady. Erroneously thinking he was a German, he was expelled from Paris four years later, and going to London, he was for a while ophthalmic surgeon at St. Thomas's Hospital.

The late lamented Dr. de Wecker held a modest clinic in the Rue Visconti, from which he moved later to the attractive stone building pleasantly situated in a garden in the Rue du Cheche-midi, where, till his lamented death last January, he welcomed visitors from all parts of the world. Of the oculists practising in Paris in 1866 M. Galizowski is probably the sole survivor to-day.

Very truly yours,

David Coggin, M.D.

THE USE OF SUNLIGHT IN THE TREATMENT OF BEDSORES.

Arlington Heights, Nov. 12, 1906.

Mr. Editor: So far as I am able to learn, a new method of treating bedsores is illustrated by the following case: Mrs. B., age forty-four years. Myelomalacia in July, 1904, followed soon after by meningitis, leaving a complete paralysis of both lower limbs and left arm. The sacral bedsore had resisted all treatment for two years on account of urinary incontinence together with the inability of the patient to lie on either side for more than a few minutes at a time. Thus the sacrum was kept wet most of the time in spite of the best of care. The worst of the sore had healed, but there remained a hole an inch deep and an inch in diameter, cone shaped with the base out, which had resisted all the usual applications. Pillows and pads to relieve pressure could not be used on account of the hyperesthesia. The sore suddenly began to enlarge and I searched the literature in vain for something more. Being interested in the uses of sunlight it naturally suggested itself. In order to concentrate the rays a concave head mirror was used. Each day when the sun reached the proper place the patient was turned on her side and a strong beam of light was thrown into the depths of the sore. The good effect was apparent almost at once, and in four weeks the sore was healed for the first time since the beginning of the illness.

The use of the plain mirror had one disadvantage, namely, that when the nurse brought the light to too sharp a focus it produced sensations of discomfort due, of course, to the heat so produced, although not so recognized by the perverted senses of the patient. I have thought that this might be prevented by having the concave mirror made of blue glass, thus avoiding the actinic rays.

Very truly yours,

A. H. Ring, M.D.

FIBROMA OF THE ILEUM.

Boston, Nov. 14, 1906.

Mr. Editor: It has been called to my attention that in my recent article entitled "A Small Fibroma of the Ileum Resulting in Obstruction," etc., published in the Journal Oct. 18, 1906, no reference was made to a similar case reported by Prof. H. A. Royster (*Medical Record*, N. Y., Aug. 5, 1905) entitled "A Case of Fibroma of the Ileum, Producing Obstruction by Invagination; Enterotomy; Recovery. With a Brief Consideration of Benign Growths of the Intestines and Methods of Operating."

I regret the oversight. I had already done considerable work looking up recent literature on the subject before Dr. Royster's report had been indexed.

Truly yours,

John W. Dewis, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCT. 27, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,299	391	Quincy	1	3
Chicago	505	148	Waltham	4	2
Philadelphia	469	129	Gloucester	—	—
St. Louis	—		Pittsfield	4	—
Baltimore	204	50	Brookline	6	2
Cleveland	—	—	North Adams	3	0
Buffalo	—	—	Chicopee	2	1
Pittsburg	—	—	Northampton	15	3
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	3	2
Washington	—	—	Hyde Park	3	1
Providence	65	19	Newburyport	—	—
Boston	204	47	Leominster	1	—
Worcester	33	10	Melrose	—	—
Fall River	36	19	Woburn	4	1
Cambridge	22	9	Marlborough	2	0
Lowell	29	10	Westfield	—	—
Lynn	19	6	Peabody	—	—
New Bedford	23	6	Revere	2	1
Springfield	20	2	Clinton	2	0
Lawrence	23	7	Attleboro	3	1
Somerville	27	6	Adams	4	1
Holyoke	9	5	Gardner	11	2
Brockton	14	4	Milford	3	
Malden	10	4	Weymouth	2	0
Salem	14	2	Framingham	—	
Chelsea	13	7	Watertown	1	0
Haverhill	10	2	Plymouth		—
Newton	4	3	Southbridge	6	3
Fitchburg	8	4	Wakefield	—	—
Taunton	12	4	Webster	—	
Everett	7	1			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING NOV. 17, 1906.

J. E. GARDNER, medical inspector. Detached from U. S. R. S. "Wabash," Navy Yard, Boston; ordered home to wait orders.

J. M. EDGAR, surgeon. Ordered to U. S. R. S. "Wabash," Navy Yard, Boston.

J. P. DEBRULER, passed assistant surgeon. Detached from duty in the Bureau of Medicine and Surgery, Navy Dept., Washington, and ordered to duty at the Naval Medical School Hospital, Washington; then ordered to "Paducah."

C. H. DELANCY, passed assistant surgeon. Detached from "Paducah"; ordered to U. S. R. S. "Hancock," Navy Yard, New York.

J. D. MANCHESTER, passed assistant surgeon. Detached from U. S. R. S. "Hancock," Navy Yard, New York; ordered to Naval Hospital, Naval Home, Philadelphia.

A. J. GEIGER, passed assistant surgeon. Detached from Naval Hospital, Mare Island, Cal.; ordered to Naval Station, Guam.

W. J. ZALESKY, assistant surgeon. Orders of Oct. 31, 1906, modified. When detached from "Newport"; ordered to U. S. T. B. "Stringham," for duty with the Third Torpedo Flotilla.

F. H. BROOKS, assistant surgeon. Ordered to Naval Hospital, Mare Island, Cal.

G. L. ANGENY, surgeon. Detached from Naval Hospital, Naval Home, Philadelphia; ordered to Naval Station, Guam.

M. K. JOHNSON, surgeon. Detached from U. S. S. "Iowa"; ordered home and wait orders.

R. P. CRANDALL, surgeon. Detached from U. S. R. S. "Hancock"; ordered to "Georgia."

PHILIP LEACH, surgeon. When discharged from treatment at the Naval Hospital, New York, ordered to duty on the U. S. R. S. "Hancock."

F. M. SHOOK, assistant surgeon. Detached from duty at Navy Yard, Mare Island, Cal.; ordered to duty at the Naval Hospital, Mare Island, Cal.

V. C. B. MEANS, surgeon. Detached from duty at Naval Recruiting Station, San Francisco; ordered to duty at the Navy Yard, Mare Island, Cal.

SOCIETY NOTICES.

MUTTER LECTURE ON SURGICAL PATHOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA. — The Mutter Lecture for 1906 will be delivered in the hall of the College of Physicians, N. E. corner of 13th and Locust streets, on Tuesday, Dec. 4, at 8.30 P.M., by Dr. William J. Mayo, surgeon to St. Mary's Hospital, Rochester, Minn. Subject: "The Principles Underlying Surgery of the Stomach and Associated Viscera." You are cordially invited to be present.

JOHN H. BRINTON, M.D., *Chairman*,
GEORGE MCCLELLAN, M.D.,
J. ALISON SCOTT, M.D.,
Committee of the Mutter Museum.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY. — In conjunction with the Boston Medical Library Association, meeting, Dec. 5, 1906, John Ware Hall, at 8.15 P.M. "Observations on False and True Hydronephrosis," Dr. A. T. Cabot; Discussion, Dr. D. F. Jones. "A Few Notes on a Few Cases of Renal Tuberculosis," by Dr. Paul Thorndike; Discussion, Dr. F. S. Watson. Refreshments.

J. C. HUBBARD, *Secretary*.
84 BAY STATE ROAD.

RECENT DEATHS.

DR. T. M. A'HERON, of Hampton Junction, N. J., died from Bright's disease on Nov. 16, at the age of sixty years. He was a native of Ireland, and came to this country about thirty years ago. For many years he was the chief surgeon of the Central Railroad of New Jersey, and he is believed to have performed more amputations than any one else in the state.

WILLIAM MARSHALL BARRETT, M.D., M.M.S.S., died in Westborough, Nov. 14, 1906, aged eighty-four years.

BOOKS AND PAMPHLETS RECEIVED.

Elements of General Chemistry with Experiments. By John H. Long, M.S., Sc.D. Fourth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

The Treatment of Syphilis. By Alfred Fournier. English translation of the second edition (revised and enlarged) by C. F. Marshall, M.D., F.R.C.S. London: Rebman, Limited. New York: Rebman Co. 1906.

Elementary Manual of Regional Topographical Dermatology. By R. Sabouraud. English translation by C. F. Marshall, M.D. Illustrated. London: Rebman, Limited. New York: Rebman Co. 1906.

The Diseases of Women. A Handbook for Students and Practitioners. By J. Bland-Sutton, F.R.C.S. Eng., and Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S. Edin. Fifth edition. Illustrated. London: Rebman, Limited. New York: Rebman Co. 1906.

A Text-Book of Elementary Analytical Chemistry, Qualitative and Volumetric. By John H. Long, M.S., Sc.D. Third edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

The Viability of Bacillus Typhosus under Various Conditions. By John M. Wheeler, M.D. Reprint.

Extracts from an Article Entitled "Vivisection and Progress: A Statement and an Appeal." By Greville MacDonald, M.D. Reprint.

Conferences on the Moral Philosophy of Medicine. Prepared by an American Physician. London: Rebman, Limited. New York: Rebman & Co. 1906.

Formaldehyde Disinfection. Determination of the Yield of Formaldehyde in Various Methods of Liberating the Gas for the Disinfection of Rooms. By Daniel Base. Reprint.

Transactions of the American Otological Society, Thirty-ninth Annual Meeting. Vol. X. Part II. 1906.

Appendicitis. To Operate or Not to Operate. By J. J. Brownson, M.D. Reprint.

Diseases of the Stomach. A Text-Book for Practitioners and Students. By Max Einhorn, M.D. Fourth revised edition. Illustrated. New York: William Wood & Co. 1906.

A Treatise on the Motor Apparatus of the Eyes, Embracing an Exposition of the Anomalies of the Ocular Adjustments and Their Treatment, with the Anatomy and Physiology of the Muscles and Their Accessories. By George T. Stevens, M.D., Ph.D. Illustrated. Philadelphia: F. A. Davis Co. 1906.

The Ear and Its Diseases. A Text-Book for Students and Physicians. By Seth Scott Bishop, B.S., M.D., LL.D. Illustrated. Philadelphia: F. A. Davis Co. 1906.

A Primer of Psychology and Mental Disease. For Use in Training Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. Burr, M.D. Third edition, thoroughly revised. Illustrated. Philadelphia: F. A. Davis Co. 1906.

On Tabes Dorsalis. The Lumleian Lectures Delivered before the Royal College of Physicians, London, March, 1906. By David Ferrier, M.D., LL.D., F.R.S. Illustrated. New York: William Wood & Co. 1906.

A Syllabus of Materia Medica. Compiled by Warren Coleman, M.D. Third edition. Revised to conform to the Eighth Decennial Revision of the U. S. Pharmacopeia. New York: William Wood & Co. 1906.

Address.

THE MAJOR SYMPTOMS OF HYSTERIA.*

BY PIERRE JANET, M.D.,
Professor of Psychology at the Collège de France; Director Psychological Laboratory, Salpêtrière.

XIV.

THE HYSTERICAL MENTAL STIGMATA.

The rôle played by suggestion in hysteria begins to be well known, but I think it is well to go further and we should not explain the whole of this so complex disease through this single phenomenon. Other fundamental phenomena are also stigmata, and I propose to divide them into two classes. Some deserve to be called special, as suggestion itself. They are phenomena that exist in hysteria but scarcely exist in any other disease. The others might be called common stigmata, because they do not exist solely among these patients and they are to be found in other mental affections, in particular in the psychasthenic neuroses.

I. I do not believe that everything in hysteria is in relation only with suggestion and with the thought of the subject. Besides suggestion, I should like to mention a very singular disposition of mind to abstraction, or quite exaggerated absent-mindedness. These patients appear to see but one thing at a time and to have no notion of other surrounding objects. The same limitation is observed in their movements, and this fact may even be made in some sort experimental. It is impossible for the subject to continue one movement as soon as he attempts to do something else. The exaggeration of this disposition will bring about the phenomenon of subconsciousness. A great many things will exist outside the personal consciousness. You will be able to make the patients walk and act unknown to themselves. This disposition to exaggerated absent-mindedness cannot be a consequence of the preceding symptom of suggestion. The patients have not the idea of this phenomenon, the importance of which they do not suspect. Suggestion itself appears to me to depend on that disposition and to be much oftener its effect than its cause. This special absent-mindedness is a stigma peculiar to hysteria, in the same way as the modifications of the visual field are a peculiar disturbance of vision.

A third phenomenon is the fact of transfers and equivalences. It has often been observed, either experimentally or accidentally that an accident, a paralysis, for instance, is found to disappear on the right side and to become localized on the left. In the experiments of transfer many childish errors developed, so that we saw a violent reaction. The very notion of the phenomenon of transfer was suppressed. In my opinion this passage of an accident from one side to the other is a particular application of a disposition which is very general with the hysterical, namely the disposition to equivalences. When an accident has disappeared very often another apparently quite different accident takes the place of the first. The transfer is simply a particular form of equivalence, for the sensations of the symmetrical parts are very similar and can very easily be replaced by one another. This results from a general disposition of the hysterical mind, which urges it to move in its entirety to one side, while neglecting the rest of the body and mind, then to move in its *ensemble* in another direction, while forgetting the first.

II. Can we summarize these three stigmata, — suggestion, absent-mindedness and alternation, — into a single general idea? You will find the expression useful which I proposed formerly in my book on the mental state of hystericals (1894), translated into English by C. Rollin Corson (1901). I had proposed to summarize this somewhat peculiar mental state by the words "retraction of the field of consciousness." Let us try to understand the meaning of this general expression. The personal perception which we call consciousness is a synthesis of the elementary phenomena, and this synthesis may vary in many ways. Many hysterical phenomena depend on the absence of control. But control is nothing but the struggle, the competition of the various psychological states united in the same consciousness. If it is wanting, it is because the mind is too narrow to contain several ideas opposing one another. The exaggerated absent-mindedness and the alternation are but another aspect of the same phenomenon. It is because the field of consciousness remains contracted that you can never add one phenomenon on one side without taking one away from another side.

III. The patients we consider are first and above all neuropathic individuals whose central nervous system is weakened; then they are hystericals, when their enfeeblement takes a particular form. The result is that, besides the properly hysterical stigmata, they have general, vague, disturbances at once psychological and physiological which belong to all neuropathic individuals and which constitute the common stigmata. I will point out to you in this connection certain feelings that play a rôle in the popular conception of hysteria. The general sentiments of dissatisfaction, of incompleteness give to the patient a peculiar attitude or conduct. They are plaintive, agitated, they will commit all kinds of eccentricities. They need to attract attention to themselves in order that people may take an interest in them and excite them. We notice also the innumerable lapses of all the mental functions, the incapacity of attention, the continuous amnesia, all the forms of aboulia. No doubt you will find all these phenomena with all neuropaths; but this is not a reason for neglecting them with hystericals. In a word there is in these patients a mental depression characterized by the disappearance of the higher functions of the mind, with the preservation and often with an exaggeration of the lower functions. This depression, this lowering of the mental level, takes in hysteria the special form of a retraction of the field of consciousness.

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* Author's abstract report of the fourteenth lecture delivered at the Harvard Medical School, Nov. 15, 1906.

Original Articles.

THE EXAMINATION OF THE THROAT IN CHRONIC SYSTEMIC INFECTIONS.

BY J. L. GOODALE, M.D., BOSTON

THE object of the following paper is to present suggestions for examination of the throat which I have found of value in conditions of chronic systemic infection. With the more general recognition on the part of the general practitioner of the importance of the throat as an entrance point of infection, aid is more and more frequently sought of the laryngologist, in order to determine whether, in a given case, he can throw light upon the cause or origin of the general process. In the past twelve years I find, from a review of hospital and private practice, the largest number of such consultations relates to cases of cervical adenitis. Within the last year, many consultations have been held with orthopedic surgeons in cases of chronic arthritis. The question always asked is, Does the throat account for the enlarged glands or is the throat the point of entrance for the infection of the joints?

In answering these interrogations we must look beyond the question of whether the throat exhibits alterations visible to the eye. We must bear in mind both the normal and pathological histology of the parts, as well as the nature of the special infection in question. We must distinguish between penetration of micro-organisms through the tissues of the throat and the absorption of toxins. In short, we must base our opinion, not only upon minute and painstaking examination of the case in question, but also upon an intelligent application of the related data in physiology and pathology.

Although a variety of infections probably enter the system through the throat, yet I shall confine my remarks for the present to tuberculosis of the lymph nodes and to infectious arthritis. In the study of the former infection the investigator is fortunate in possessing knowledge of the causative agent. If, therefore, we are able to follow here with accuracy the phenomena involved, we shall have a point of departure for the study of other diseases, where the cause and nature of the infection are less clear.

In studying the condition which the orthopedic surgeon terms infectious arthritis the investigator starts seriously handicapped. While clinical evidence appears to show that a state of infection exists, yet we do not know what the micro-organism is, or whether the disease is due to the actual penetration of bacteria into the body or to an absorption of their products into the system. Nevertheless, experience has repeatedly shown that the discovery and removal of a septic focus in this affection have been followed by more or less complete relief to the joint symptoms. Since the condition bids fair in the future to engross the attention of the laryngologist with increasing frequency, it behooves him to have as clearly as possible in mind what conditions of the throat are likely to constitute an infection atrium.

With regard, in the first place, to cervical lymphadenitis, the laryngologist has to determine whether the exciting cause is tuberculosis or some other irritant. I shall report briefly nine cases of this affection, where it was possible to study with comparative fullness the pathology and course.

CASE I. A boy, five years of age, seen April 2, 1904, in consultation with Dr. T. M. Rotch, had shown one year previously enlargement of the cervical nodes on the left side, subsequently diminishing. During the past month, several of the nodes again became enlarged on the same side, the largest reaching the size of a hickory nut.

Examination of the throat showed tonsils of normal contour and color, not enlarged or adherent to the pillars. The crypts presented no dilatation, and showed no evidence of retention of contents. A small non-obstructive pharyngeal tonsil was present. Under ether, both tonsils and the adenoid were removed. The left tonsil on incision showed a central collection of puriform material in a cyst-like cavity. Within a few days, the cervical glands on the left became larger and were removed.

The adenoid and left tonsil were examined microscopically by Dr. J. H. Wright, and inoculation made into guinea pigs. The adenoid showed no evidence of tuberculosis under the microscope, and inoculation into a guinea pig was not followed by tuberculosis. The tonsil showed giant cells and tubercles microscopically. Inoculation into a guinea pig was followed by tuberculosis of the spleen and lymphatic glands.

In January, 1906, the child was again seen. Since the operation he had been perfectly well, without a return of the cervical adenitis until three weeks ago, when a small mass appeared near the scar on the left, soft and elastic. Examination of the throat showed no sign of the left tonsil. Some small granules were visible on the posterior pharyngeal wall, and a certain amount of lymphoid tissue was found at the site of the right tonsil. The cervical nodes on the left were removed and found to be tubercular.

CASE II. Girl, two years of age, seen with Dr. Rotch, Feb. 23, 1904. For the previous three weeks, elevations of temperature occurred every afternoon from 100 to 101, accompanied by gradual enlargement of nodes under left jaw. The child was fairly well developed and nourished. Several cervical nodes were found on the left, the largest being the size of a hickory nut, the others about the size of a pea. The left tonsil showed moderate enlargement with marked dilatation of the crypts, and evidence of recent rapid proliferation, characterized by irregular mamillated surface, with here and there protruding digitations of lymphoid tissue. The right tonsil was smaller and presented nothing abnormal. Both tonsils and considerable adenoid tissue were removed.

After this operation the temperature continued to run irregularly, and the cervical nodes on the left were removed in about two weeks by Dr. Dane. Several weeks later other nodes on the left enlarged and were removed. Since then the child continued to improve in every way, and remained well until May 1, 1906, when again the temperature exibited afternoon elevations to 100 and 101 and two pea-sized nodules appeared near scar on left side of neck. Examination of the throat now shows no evidence of lymphoid tissue at the site of the left tonsil, and in other respects presents nothing to account for the adenitis.

The tonsils and adenoid were sent to Dr. J. H. Wright for examination. Tubercles and giant cells with bacilli of tuberculosis were found microscopically in the left tonsil and in the adenoid. Inoculation of a guinea pig with the tonsil was followed by emaciation and development of tuberculosis over the peritoneum and in the retroperitoneal and mediastinal lymph nodes and the spleen. The lymph nodes of the neck showed typical tuberculosis, and a guinea pig inoculated with the caseous material from one of the nodes was killed six weeks later and showed tuberculosis of the lymph nodes.

Case III. Child, six years of age, was seen March 7, 1905, with Dr. McKean, for cervical adenitis, and showed a large adenoid, with hypertrophy of both tonsils. Several cervical nodes on the right were enlarged, the largest being the size of an English walnut. Clinical examination of the tonsils presented nothing beyond simple hypertrophy. The crypts were not enlarged, and there was no evidence of retention in the crypts. The tonsils and adenoid were removed and inoculated into guinea pigs. The animals inoculated with tissue from the adenoid and left tonsil were found healthy when examined six weeks later, while the pig inoculated from the right tonsil showed extensive tuberculosis.

Case IV. Boy, five years old, seen May 18, 1904, with Dr. W. J. Donahue, for right cervical adenitis of several months' duration. Child fairly well developed and nourished, cervical glands on the right enlarged to size of Lima bean; tonsils apparently normal; moderate adenoid. On operation, the right tonsil showed considerable cheesy material in the center; the left tonsil and adenoid presented nothing abnormal. In September of the same year the child was seen, and showed a clean, normal-looking throat, with slight diminution in the size of the nodes.

The right tonsil was sent to Dr. J. H. Wright for examination. Microscopical examination showed giant cells and tubercles. Portions of the tissue were inoculated in a guinea pig, which was killed five weeks later, and showed tuberculosis of the retroperitoneal and mediastinal nodes, the spleen, the inguinal and one axillary node. Tubercle bacilli were demonstrated in one of the lymph nodes.

Case V. Boy, five years of age, seen April 23, 1904, with Dr. L. F. Vickery, for right cervical adenitis of two months' duration. The tonsils were slightly enlarged and adherent to the pillars, but otherwise presented nothing abnormal. A moderate adenoid was present. Both tonsils and adenoid were removed.

The specimens were sent to Dr. J. H. Wright for microscopical examination. A guinea pig was inoculated from the right tonsil and killed six weeks later, showing tuberculosis of the lymph nodes, of the spleen and of the liver. The guinea pigs inoculated from the adenoid and left tonsil did not develop tuberculosis.

One month later the cervical nodes became slightly smaller and continued during the next year to decrease in size. The child remained well until April, 1906, when a single node on the right appeared rapidly enlarged, and showed central softening. Examination of the throat showed no evidence of hypertrophied lymphoid tissue at the former site of the tonsils, and nothing otherwise abnormal to account for the enlargement of the node. The general condition of the child was excellent.

Case VI. Girl, two years, seen Dec. 5, 1904, with Dr. Rotch, showed moderate enlargement of the tonsils and adenoid, with slight swelling of the cervical nodes on the left, the largest being about the size of a small pea. No operation was advised at the time, but during the following winter, the child had several severe colds, with increase in the size of the tonsils and of the adenoid, the cervical nodes remaining about the same. Except for a moderate hypertrophy of the tonsils, there was no abnormality noted on clinical inspection, there being no dilatation of the crypts or evidence of lacunar retention. The right tonsil and adenoid tissue were sent to Dr. Wright, who reported on May 23, as follows:

" The guinea pig inoculated March 11 with a portion of a tonsil received that day, was killed to-day, May 23, and shows extensive tuberculosis, obviously originating from the point of inoculation. The guinea pig inoculated with the adenoid tissue fails to show tuberculosis. Microscopical examination of sections of the tonsil and adenoid does not show tuberculosis."

Case VII. Boy, four years of age, seen with Dr. C. P. Putnam, Jan. 15, 1906, for right cervical adenitis of four weeks' duration, without other symptoms. The child was well developed and nourished. There was a moderate adenoid. The tonsils were moderately enlarged, but showed otherwise nothing abnormal, there being no dilatation of the crypts or acute inflammation. Three cervical nodes on the right side were enlarged to the size of a hickory nut. No change was noted during the following week, and the tonsils and adenoid were then removed.

Histological examination by Dr. Wright showed one tubercle in a section from the right tonsil, none in the left tonsil or adenoid. The right tonsil and adenoid were inoculated into guinea pigs. Six weeks later, the pig inoculated from the right tonsil was killed, and showed extensive tuberculosis of the inguinal lymph nodes and spleen. The animal inoculated from the adenoid showed no tuberculosis.

Case VIII. A boy, seven years of age, was seen Nov. 13, 1905, with Dr. A. H. Wentworth, for left cervical adenitis of two weeks' duration, following acute tonsillitis. The node was about the size of a pigeon's egg, firm and not tender. The tonsils were markedly enlarged, with dilated crypts, containing considerable puriform detritus. The acute tonsillitis had entirely disappeared. One week later examination showed no alteration in the tonsils or in the node. Both tonsils and considerable adenoid were removed.

Dr. Wright reported simply hyperplasia of the tonsils and of the adenoid. Guinea pigs inoculated from these organs failed later to develop tuberculosis.

On the day following the operation the cervical node was smaller and in two weeks had disappeared from palpation.

Case IX. A girl, nine years of age, was seen March 7, 1904, with Drs. Rotch and F. B. Harrington, for left cervical adenitis, of four days' duration, associated with reddening and swelling of the tonsils. The cervical nodes were about the size of a hickory nut. On the following day, the tonsils were more swollen and redder, and showed a white spot on the right one at the orifice of a crypt. Cultures from this showed streptococci, but no bacilli of diphtheria. The cervical nodes simultaneously became larger and more tender. Three days later, the acute inflammation of the tonsils had disappeared, although these organs remained considerably larger than normal. Nevertheless, the cervical nodes continued to enlarge, and at this time had attained the size of an English walnut. The tonsils and a small amount of adenoid were removed. In two days the lymph nodes began to diminish in size, and within two weeks could not be palpated.

Microscopic examination of the tonsils by Dr. Wright showed simple hyperplasia. No tuberculosis was found in guinea pigs inoculated with material from the tonsils and adenoid.

These cases, therefore, demonstrate first that tubercular cervical adenitis may exist in association with the presence of tubercle bacilli in the tonsils, with or without visible changes in these structures, and is not necessarily affected by the removal of the tonsils. Second, that a form of cervical adenitis occurs, accompanied by distinct enlargement and subacute or chronic inflammation of the tonsils, and disappears after their excision. In the first instance, it appears reasonable to assume that a penetration of tubercle bacilli through the tonsils into the lymph glands has occurred; in the second, that an absorption of irritating material generated in the tonsils is taking place from them into the adjacent lymph nodes. In the latter instance, the removal of the focus of toxin production is followed by immediate relief.

Theobald Smith has shown that in cattle the bacilli of tuberculosis may enter the system through the mucous membrane of the mouth or throat, into the associated lymph nodes, without leaving any traces visible to the naked eye or discoverable by manipulation.

In seeking now to discover in what manner this penetration takes place we turn naturally to the experiments which have been made with regard to the behavior of foreign substances in contact with the epithelium of the tonsils. It is sufficiently established that a penetration of dust and similar inanimate matter is continually taking place through the lacunar epithelium. It has not, however, been shown that such a penetration can take place through the relatively stout epithelium of the pharynx, and, indeed, microscopic inspection of the closely appressed cells in these regions renders such an occurrence improbable. Whether the penetration of inanimate matter can take place through the lymph follicles of the pharynx is not determined, but at least one inhibiting factor may be mentioned, namely, the constant irrigation of these structures by the fluids of the mouth during deglutition, which will prevent a given particle of dust from remaining long over the intercellular spaces of the epithelium. This factor likewise exists in the case of the lingual tonsil, with its short, straight, and relatively wide lacunæ.

Although on theoretical grounds such an absorption is not likely to occur through the follicles of the pharynx or of the lingual tonsil, nevertheless, clinically, we know that at times, though rarely, certain micro-organisms may invade these structures, apparently in a primary manner. These infections appear to be due chiefly to streptococci, and give rise to acute inflammations of the follicles of the pharynx or of the lingual tonsil. I do not know that primary infection of these structures by the bacilli of tuberculosis has been recorded, although secondarily, where the vitality of the mucous membranes has been greatly depreciated, such lesions are not uncommon.

Our knowledge in regard to the behavior of dust on the lymphoid tissue of the nasopharynx is less complete than in the case of the faucial tonsils, but by analogy there would seem to be no reason why the same phenomena should not occur, in spite of certain differences which immediately suggest themselves, such as the relative paucity of micro-organisms, the dependent position of the lymphoid tissue, and the shape of the lacunæ, which do not favor retention of foreign substances, and the small amount and different composition of the irrigating fluid. It does not, however, seem necessary to consider the pharyngeal tonsil separately and we may, therefore, omit it, for the present, from consideration.

Returning, now, to the faucial tonsils, observation shows that bacteria, while numerous in the crypts, are not ordinarily found below the surface of the lining epithelium, being apparently arrested by some agency which prevents their penetration. Whatever the nature of this agency, it is undoubtedly at times suspended, as I have shown in acute cases of tonsillitis, with the result of producing infection within the follicles or suppuration of the circumtonsillar space. It seems reasonable to assume that bacteria, if they enter at all, will enter by the same path which inanimate matter has found most easy, namely, through the lacunar epithelium, rather than through the more impervious membrane in the vicinity. Furthermore, the crypts of the tonsils constitute more or less sheltered harbors, where bacteria may linger, unaffected by the stream flowing past outside their orifices.

On the foregoing hypothesis it is evident that, other things being equal, bacterial infection through the throat would be favored by an increase in the size and number of the intercellular spaces of the lacunar epithelium and by the retention of the contents of the crypts. We have now to consider under what circumstances such favorable conditions for infection may be found.

With regard, first, to the character of the lacunar epithelium, examination shows that the number of the intercellular spaces is proportionate to the amount of emigration of lymphoid elements from the follicles. Since such an emigration stands directly in relation to the proliferation present in the tonsils, it is chiefly in tonsils undergoing rapid proliferation of their elements, or in those which have attained a considerable degree of hypertrophy, that a loose character of the epithelium is chiefly marked. It is, therefore, found mostly in the young, or in older individuals where proliferation is maintained by one cause or another.

On the other hand, as I have shown in studies on the retrograde changes of the faucial tonsils, where atrophy of the follicles is marked and proliferation correspondingly decreased, the lacunar epithelium in the vicinity partakes much more of the stout, compact type covering the free surface of the organ. In other words, the tonsils under these circumstances would theoretically prove a more efficient barrier against the penetration of foreign substances.

Retention of lacunar detritus and opportunity for the development of bacterial activity will naturally be afforded by a narrowing of the orifices of the crypts. Such constriction may take place as the result of cicatricial contraction arising from previous acute inflammation or by adhesion to the tonsillar folds or the pillars in the vicinity or by process of retrograde metamorphosis. If the occlusion of the orifice of the crypt is complete, a cyst-like cavity will be formed. If this cavity is free from bacteria, it will exert no further influence upon the system, except, possibly, through pressure. If, however, the occlusion is not complete, but permits the entrance of micro-organisms, those which are saprophytic will effect a decomposition of the lacunar contents, while those of pathogenic property may be permitted to live, multiply, and await favorable opportunity for entering the system.

Such a condition of affairs may usually be perceived clinically by the presence of cheesy masses in the tonsillar crypts, or in the supratonsillar fossa, or between the tonsil and the pillars, especially the anterior pillar. These are seen microscopically to consist of desquamated epithelium, both living and dead leucocytes, bacteria and, at times, even particles of food. Clinically, this condition is characterized to a greater or less extent by evidences of toxic absorption into the system, as evidenced by pallor, impairment of strength and spirits, fetid odor of the breath and gastric disturbances of various kinds. It is, therefore, probable that the two chief anatomical factors favoring infection may be found in the looseness of the lacunar epithelium, prior to retrograde metamorphosis of the follicles, and in the retention of lacunar detritus.

With these facts now in mind, we are in a better position to answer the question whether in a given case the throat is responsible for an infectious process elsewhere. It will be seen immediately that the average tonsil may be an entrance point for infection without essential deviation from the normal type, either in size or other pathological alterations. Our consideration must not only regard the strength or weakness of the supposed point of attack, but also the nature of the invader, and the resistance on the part of the host.

Tubercular cervical adenitis is essentially a disease of the young, and, as these cases have shown, may enter any tonsil, even of normal appearance, provided the micro-organisms are present in the throat and suitable predisposition on the part of the host exists.

Non-tubercular cervical adenitis from absorption of toxins produced in the tonsils would, theoretically, be accompanied by visible alterations in the latter characteristic of lacunar retention. This occurred in cases IV and IX, and is confirmed by many instances which have come under my observation.

In chronic infectious arthritis, we have, as yet, but scanty data, and more will be eagerly awaited. If it be true that this affection is due to a specific micro-organism, it would seem probable that it is constantly about us, as in the case of the pathogenic micro-organisms. In this event it is possible that bacterium may be more or less constantly present in the mouth, and that certain individuals are peculiarly susceptible to infection by it. On theoretical grounds it would seem more reasonable to assume that such predisposition is a primary factor in its causation, rather than that a certain state of the throat may permit of its development in any individual.

Given, however, systemic predisposition, local vulnerability would become of importance in determining an attack, and we are, therefore, impelled to seek for the place of diminished resistance. While the point of infection may occur in other regions than the throat, yet if these can be eliminated we should look carefully in the tonsils for such conditions as have been described.

Following out this line of thought we may say that the arthritic individual predisposed to rheumatic infection finds in the administration of certain remedies, or in the restriction of his diet, means for resisting infection, or in controlling the development of micro-organisms after admission. The examination of a large number of cases of infectious arthritis, with regard to the conditions of the throat, has demonstrated the existence of pathological alterations in the tonsil characterized in general by retention of lacunar detritus, with or without hypertrophy of the organ. Since, however, inspection and careful clinical examination may fail to disclose deep-seated collections of detritus, communicating by circuitous passages with the open air, it seems to me wise, if other points of infection can be eliminated, to extirpate the tonsils in the most thorough manner. We shall thus replace a tissue of diminished resistance by a stout barrier of compact structure without nook or recess to harbor a pathogenic parasite.

Since this was written I have received word from Dr. Theobald Smith that the cultures from Cases I, II, IV and VI have been demonstrated by him to be of the type of bovine tuberculosis.

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SOME FUNDAMENTALS IN HYDROTHERAPY.*

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Hydrotherapy is the treatment of disease by water. While the idea of the therapeutic value of applications of water is an old one, it is within recent years that our knowledge of this subject has been sufficiently clear to be thoroughly scientific. Hydrotherapy in the past has been mostly empirical and was frequently used by men outside of the profession, some of whom, such as Priessnitz, of Austria, during the last century, did much to compel the attention of the profession by the remarkable results which were obtained through the use of water even with crude appliances. But within the last quarter of a century, hydrotherapy has become thoroughly established on a scientific basis and is fast winning the confidence of the profession as a branch of medicine. This change in sentiment is due, not alone to the demonstrated successes of this method of treatment, but quite as much to a radical change in our conception of the real nature of disease and the character of the work that is to be accomplished in combating it. The old idea that sickness was the result of some supernatural or occult influence quite independent of the individual, but which was imposed upon helpless humanity by some influence or power for which the individual was in no way responsible, has been fully eradicated from the professional mind, at least. This has been accomplished by the findings of the autopsy table and the revelations of the microscope in the pathological and clinical laboratories. The pathologist has already been able in so many instances to explain the morbid symptoms by changes in structure of some of the tissues of the body, that we are ready to accept the postulate that all sickness is the result of deranged physiological functions; and if we could search with sufficient care and minuteness, we should find a physical interpretation for every morbid symptom in an altered condition of some of the tissues of the body. It is evident then that the chief aim of therapeutics must be to restore these tissues once more to their normal condition. To cause the disappearance of symptoms is not sufficient. We may, by means of drugs of various sorts, so relieve the patient's symptoms that to-day he may seem perfectly well, but to-morrow will be found suffering from the same distresses as before. Restoration to health is a matter of growth and development of new structural elements with which to replace those that are disorganized. We must ever keep in mind the fact, then, that the real curative force lies, not in our medicine case, but in the constitution and vitality of the patient. Nature is the real curative agent. As Dietl, the pupil of the famous pathologist Rokitansky, observes, "Nature alone can heal. This is the highest law of practical medicine and the one to which we must adhere. Nature creates and maintains. She must, therefore, be able to cure." The physician then really can do little more than to supply for his patient the most favorable conditions and materials with which nature is to work.

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As a foundation for this study, let us briefly notice what are the efforts of nature in sickness and what are the agencies by which she works in the construction and reconstruction of body tissues. First, perhaps, we should name the blood as the agent which supplies all the materials from which tissues are built and from which the glands of the body elaborate their secretions. The same blood stream is the principal agent for tearing down and removing the old and obstructing material. An eminent clinician has well remarked, "It is the blood that heals." Nature's first effort at repair of acute injuries is always shown by the reddening due to the increased amount of blood which has been sent to the part. One of the principal requirements for rapid restoration or reconstruction of tissue elements necessary to a cure in chronic diseases is to facilitate the circulation of a good blood stream through the part.

Second in importance in the work of reconstruction of the body is the part played by the nerves, as the nervous system dominates all the phenomena of organic life. It is well said, "The cells are the artisans in the organic workshop, but the nerves are the overseers." Hence it is often necessary in the work of therapeutics to rouse the nervous system to more vigorous work.

A third indication in weak and diseased conditions is to increase the vital resistance of the body by which it is able to withstand the invasion of germs and toxic elements which constitute the causal factors in so many diseases.

A fourth indication is often found to increase the work of elimination of waste and obstructing materials through the emunctories of the body.

A fifth indication is to relieve special symptoms for the comfort of the patient until the work of restoration has been accomplished.

Having roughly outlined the field of therapeutics, let us notice the special value of hydrotherapy in meeting the several indications mentioned.

A. First as to the regulation of the amount of blood in a given organ or part of the body or the proper distribution of the blood throughout the body. Not only does this question have a bearing on diseases that are directly due to disturbed circulation, as local congestions, anemias, inflammations, etc., but, as has been recently shown, much disturbance may result from an improper distribution of the blood in chronic conditions. Abrams, in his excellent work on "The Blues," argues very rationally that the chronic depression of neurasthenics is largely the result of an over-distention of the portal and splanchnic veins, which means an anemia in the skin and surface structures. Not only is the power to direct the circulation important in conditions of this sort, but in chronic disorders of special organs of the body, as has before been suggested, the work of repair must depend largely upon the facility with which the blood is made to circulate through the organ. In hydrotherapy we have an important means of regulating the amount of blood from the fact that cold contracts the blood vessels, and hence diminishes the amount of blood delivered through them. On the other hand, heat dilates the arteries, with a consequent increase in the amount of blood supplied. This principle is fundamental, and we are doubtless all sufficiently familiar with the blanching of the skin under cold applications due to the contraction of the superficial vessels and to the marked reddening of the skin under the influence of hot applications, so that this principle needs no further demonstration. This influence of temperature on the circulation may be utilized to advantage in several different ways, namely, directly, proximally, derivatively and reflexly.

(1) If the part to be treated is superficial, then we may make our application as desired, directly on the part. For example, in inflammation or burns of the skin, ice or cold compresses may be applied directly to the part affected so as to contract the blood vessels and lessen the congestion. In inflammation of superficial organs, such as the breast, the influence of cold in lessening the circulation or of heat in increasing it may be directly applied. The hands or the feet may be immersed in either hot or cold water, according to the effect desired. These are sufficient examples of how we make our applications directly.

(2) In some conditions, however, it is impossible or inadvisable to make applications directly to diseased parts. The hand, for instance, on account of lacerations or dressings should not be wet, and yet it is desirable to limit the congestion. In such cases an application may sometimes be made proximally, that is, at a point between the affected part and the heart, so as to contract the artery supplying the congested area. In the case of the hand, an ice bag applied over the brachial artery in the axilla will cause a contraction of its trunk with a reduction in the amount of blood delivered to its periphery. The application may also be made in the bend of the elbow. For the foot, the superficial location of the artery in the groin or in the popliteal space is a convenient place for such applications. Perhaps the most common illustration of this method is seen in the use of cold or ice compresses to the neck which, by contracting the carotids, tends to relieve the cerebral congestion. Of course, here again applications of heat would dilate the vessels and increase peripheral circulation if this were desirable.

(3) Another way of influencing the circulation may be termed derivative. In this case the blood is drawn to some other part of the body by applications of heat. We are all familiar with the fact that the hot foot and leg bath will relieve congestive headache by dilating the blood vessels of the lower extremities and thus drawing the blood away from the brain. The hot leg pack is equally good to relieve congestion of the head, of the lungs, or of the abdominal and pelvic organs. A short general hot bath relieves internal congestion by engorging the skin vessels.

(4) The fourth method of influencing the circulation is the reflex method. In order to understand this thoroughly, it may be necessary to notice briefly the arrangement of the nervous system by which we obtain various reflex results, by which is meant applying a cause to one part of the body and obtaining a result in some other part, through the nervous mechanism. Familiar examples of this are seen in the plantar, cremasteric and other skin reflexes. Irritation of the skin of the neck causes the pupil of the eye to dilate. Man is a segmented animal,— the segments being represented in the spinal cord by the arrangement of the spinal nerves in pairs with their anterior and posterior horns in the cord. The various nerve cells in each segment of the cord are in relation to each other through their anastomosing branches. In this way there seems to be a relation between all the structures, both superficial and internal, that are supplied from the same segment of the cord. In this way every internal organ is represented in the skin by an area with which it is in special reflex vasomotor and sympathetic relationship, in much the same way as every group of muscles of the body is represented by different motor areas in the cerebral cortex. For example, the skin of the face is in relation with the brain. The skin over the chest is in relation with the lungs because supplied from the same segments in the cord. In general, we will find that the skin over an organ is supplied from the same part of the cord as the organ, and is, therefore, in reflex relation to the organ. The foot and inner side of the thigh are in special relation to the pelvic organs. An experiment which I have frequently made in teaching this subject to nurses is to take the temperature of one hand by grasping the bulb of a thermometer for five minutes. Then plunge the opposite hand in cold water and again grasp the thermometer in the same hand as before and for the same length of time. It is found that the temperature of the hand in the second instance is from one to three degrees lower than in the first instance, very clearly due to the application of cold to the opposite hand. Since the arms are connected with the same section of the cord, they each participate in the vascular contraction caused by the sensation of cold received from either hand.

To return to the subject of influencing the circulation. We have this definite law, that applications made to the skin area which cause a contraction or a dilatation of the blood vessels of the skin, will produce the same result in the related internal organ. This has been worked out experimentally in animals. It is also clinically shown by the relief of symptoms which follow applications to the reflex areas. For instance, we are all familiar with the relief which we experience from cold applications made to the face and scalp when the brain vessels are over-distended. It is evident that the cold does not penetrate the cranium and influence the vessels directly. The effect is reflex. Cold applications to the chest limits the engorgement in the early stages of pneumonia. We are all accustomed to making cold applications over inflamed internal organs; the result obtained being always due to the reflex relation rather than to any direct effect. In passing, it is of interest to contemplate that the converse of this ought to be true; that any change in circulation in the internal organ should be also shown in the surface; and we have some examples which suggest this. For instance, a congested brain is accompanied by a red and heated face. I recently noticed, in a leading medical journal, a suggestion for locating the stomach, based on the observation that giving the patient a glass of ice water causes a fall in temperature on the skin, which, perhaps, is at least partly a reflex result. We all know that there is a great difference in the temperature of different areas of the skin. For instance, we may have a hot area over the lumbar or sacral part of the back due to some pelvic disorder, usually inflammatory. I think it quite possible that, with a careful use of a skin thermometer, a great deal might be added to our methods of diagnosing internal conditions.

It is important to remember that the effect of cold upon the internal organs is due, not specifically to the cold, but to the sensation of cold. In other words, the cold will produce no effect if it produces no sensation. This should always be remembered where continuous cold applications are being made; as after an hour or two the skin may become so paralyzed that subsequent applications no longer produce a sensation. This being true, in the absence of cold impulses the internal vessels again dilate and the application is worthless. In pneumonia, for instance, where cold is kept to the chest continuously, it is important to apply a hot fomentation for a few minutes every two hours in order to restore the sensibility of the skin.

Through this reflex arrangement we have the possibility of quickening the work of the internal organs and of hastening the reconstruction of their tissues. For instance, in the sluggish liver, it is possible by hot applications to the skin area to dilate the vessels of the liver, bringing an increased amount of fresh blood. Then by a succeeding cold application the vessels are made to contract; and thus by alternately dilating and contracting the vessels an increased amount of fresh blood is passed through the organ, waste materials are swept away and the work of the organ facilitated. While this may seem somewhat fanciful, yet if the principles we have reviewed are correct, which can hardly be denied, then the internal results are equally certain. Moreover, clinical evidence on the subject is ample and increasing. It must be evident that there is no system of medication that can nearly equal hydrotherapy in the definiteness with which we may influence and regulate the circulation, not only of the body as a whole, but in special organs as well.

B. The second indication mentioned in our outline of therapeutics is the stimulation of the nerves which control and regulate the functions of the body. In these days of nerve exhaustion and brain fag, there is a growing demand for nerve tonics. Here again we find that hydrotherapy comes to our aid through the fact that short cold applications rouse and stimulate the nervous system. The morning cold bath helps us when we have hard work to get the mental and nervous machinery started. Many times have I seen drug patients suffering from a feeling of intolerable depression and relaxation, caused by want of their accustomed stimulant, quickly relieved by a short cold douche or an alternate douche to the spine, which arouses the nervous system and enables the patient to pull himself together. Not only are such applications useful in a general way, but we may stimulate special organs reflexly by localized applications. We have already referred to the fact that cold applied to the face and scalp greatly improves our ability to think by arousing the brain cells. An ice bag applied to the precordium for a few minutes will stimulate a flagging heart and increase its strength and regularity. A short cold application over the stomach before meals often arouses that organ and improves the appetite. Short sudden cold applied to the hypogastrium causes contraction of the uterus; and many other examples might be given in the sanitarium. We have used these short cold applications, such as the cold mitten friction, or, for stronger patients, the cold spray, as a morning tonic in hundreds of cases needing nervous stimulation, and always with very satisfactory results. In hydrotherapy we have the most powerful stimulant of the nervous system. Think, for instance, of the strong stimulation which must follow an alternate hot and cold douche to the spine, applied with force, or an alternate spray to the entire surface of the body. Every nerve cell in the body is awakened and every flagging energy is stimulated.

C. Closely allied with the foregoing, the next section of our outline is the indication for developing vital resistance in nearly all diseased conditions of the body. By vital resistance I mean that rather unexplained ability which the body has for resisting the growth and influence of toxic organisms and substances. This ability evidently depends in part, at least, on the number and strength of the white cells in the blood, as has been shown by Metchnikoff and others. We notice that the first effort on the part of nature when she is attacked by disease is to as quickly as possible develop her vital defenses. In acute diseases, the question of life or death seems to be largely the question of whether the body has sufficient time and sufficient reserve forces to develop her defenses before being overwhelmed by the increasing force of the invading malady. The self-limitation of such a disease means simply that nature has succeeded in developing vital forces of sufficient strength to destroy the attacking organism. In most of the acute infectious diseases, the development of such defenses affords a protection against further invasions of the particular disease element, which protection we call immunity. It is possible, however, for the body to acquire vital force sufficient to render it impregnable to all forms of infection. This general immunity comes, not as a result of combat with the whole gamut of infectious diseases, but from the general development of the vital forces through stimulation of all the organs and functions of the body to their highest activity. One of the greatest services we can render nature in her battle with acute infections is to encourage the early development of the vital forces on which her success will depend in the final struggle. This may be done by such external applications as will put the body repeatedly on the defensive. Cold applications are especially adapted to this purpose, since contact with cold arouses all the energies of the body, thus multiplying her defenses. Brandt and his followers have shown that the success of the hydriatic method in the treatment of typhoid fever is not due to the power of the bath to lower the temperature, but rather to the increase of vital resistance and exaltation of bodily functions which the bath induces. Brandt reported a series of 800 cases of typhoid fever treated by the hydriatic method, without a single death; and 5,000 cases with a mortality of less than 4%. The great success achieved in the treatment of typhoid fever has led to the gradual extension of the hydriatic method in the treatment of other acute infectious febrile diseases. The cold bath or cold applications are now being used with equal success in nearly all acute fevers including pneumonia.

While such hydriatic stimulation is of inestimable value in the treatment of acute disorders, it is still more essential in the treatment of a large number of chronic maladies. In acute disease, there is a natural tendency to recover, so that the most that can be said of treatment in acute maladies is that it accelerates recovery, and renders more certain a successful issue. In chronic disease, however, the situation is very different. Nature is constantly making a curative effort, but an unsuccessful one, so that the natural tendency is for the disease to progress from bad to worse. Hence it is necessary to so effectively re-enforce the powers of nature as to render the previously inefficient recuperative effort efficient and successful, so that the vital struggle becomes a winning instead of a losing battle, and the result health instead of progressive disease and finally death.

Here, again, through external physical means, we are best able to arouse the dormant vital powers and develop a stock of vital resistance sufficient to overcome the morbid conditions present. The profound effects produced upon the nervous system by the application of water to the skin enables us, through this agent, to influence every bodily function.

In my personal experience, I have been able to observe in many hundred chronic invalids of various classes the exceedingly beneficial effects arising from a systematic stimulation of the nervous system through hydriatic means, and the consequent increase in vital resistance, and improvement of all vital functions. As a simple illustration of the increase in vital resistance that follows thermic applications to the skin, I will refer to many cases that I have observed, who were the constant victims of colds and other catarrhal difficulties, and who in the course of a few weeks were entirely freed from susceptibility to such attacks by so simple a measure as a cold hand bath on rising each morning. The evident effect of the application is to so arouse the vital forces through the nervous impressions made that in the course of a few weeks the body had developed vital resistance sufficient to throw off the slight intoxications which previously had resulted in pronounced attacks of coryza. Modern hydrotherapy affords a means of systematically cultivating vital resistance through a series of applications progressive in their character. Such a series may begin in a very delicate patient with wet hand rubbing, at first limited, if need be, to a single part of the body, the successive applications increasing both in area and degree of intensity. Next in the scale would be the cold mitten friction of graduated intensity; following this, cold towel rubs, wet sheet rubs, sprays, douches and, last of all, the cold shallow bath and the cold plunge. Greater stimulation still is produced by alternate hot and cold applications. It must be evident that the effect of gradually passing a patient through such a tonic scale must be to greatly accelerate all the bodily functions, improve nutrition and hasten metabolism.

It is very important in using cold as a stimulant to understand fully the principle upon which it acts. Cold is a vital depressant, as is evident in nature everywhere. Cold is equally depressant to the vital functions of the animal body. Cold abstracts heat, and heat is energy. It is, therefore, a danger and a menace, and hence, like all other tonics, is capable of doing damage if injudiciously used. It is because nature recognizes the danger from cold that it arouses every function of the body to meet the emergency. The beneficial effect resulting from cold applications is not the result then of the cold itself, but of the reaction which follows its application. The reaction is the subsequent opposite effect produced by the resistance of the body. I can think of no better illustration of reaction in hydrotherapy, that is, the beneficial effects following an application undesirable in itself, than the late affair known as our Spanish War. The direct effects of war are always destructive to property and to lives and tend to weaken if not destroy the nation upon which it is inflicted. In the case of our Spanish War, however, instead of any such result, we found after the war, as a recompense for the few lives lost and the small amount of property destroyed, we had all of our coast defenses renovated and repaired, our battleships increased in number, our army and navy better disciplined and our whole national enthusiasm aroused so that the nation was far stronger after the war than before. In this instance, the application of war was fortunately limited to just enough to produce this national stimulation, with the production of the least possible harm. So in using cold applications for tonic effects we should ever bear in mind the fact that it is necessary to keep the application within the powers of the patient to react well, and to, in every case, limit the cold application to the least possible amount that will secure the desired stimulation. I find that many of my patients, believing that cold was beneficial in and of itself, have gone on the principle of "the more the better" only to come out of a prolonged cold application to find themselves greatly depressed in spirits and strength. This is often witnessed in sea bathing. People remain in the cold water until the heat making centers are exhausted and the whole system is worn out in its continued struggle with cold. The index that should ever guide us in tonic cold applications is the ability of the patient to re-act well after them. The evidences of a good re-action may be summed up as follows: Red and dry skin, warmth of the body including the extremities, and a general feeling of well-being and comfort. With these results after any cold application you may be sure your patient has only been benefited. Of course, it is necessary that the application be adapted to the condition and vitality of the patient. In hydrotherapy it is possible to graduate these applications from the mildest, which the most delicate patient can stand, to the most powerful, sufficient to stimulate even the most robust individual. I have already indicated the gradation of such applications in the tonic scale previously mentioned. Reaction may be further insured by applications of heat preceding the cold; by friction and percussion during the application, and by friction, massage or exercise after the application. With intelligent usage there is no other tonic agent which can be so accurately and effectively applied and which is more free from deleterious after-effects than hydriatic applications. We can see what a useful factor it becomes for developing vital resistance with which to meet acute or chronic morbid conditions.

D. The fourth indication mentioned in our outline is an important necessity of eliminating from the body poisons which are the result either of metabolism or which are due to some special process present in the body. Here again hydrotherapy offers us the most direct and efficient means by which to work. Certainly, no more desirable method for increasing elimination through the skin can be found than general hot applications, such as hot packs, hot water baths, hot air baths and, best of all, the electric light bath. While this may not belong directly to the department of hydrotherapy, it is closely allied to it. The electric light bath produces free perspiration within a few minutes and without the necessity of prolonged heating of the skin to a high temperature. The prompt result is due to the fact that the light penetrates the skin which dark heat will not do. But the light on meeting with resistance in the deeper structures is there converted into heat, quickly raising the temperature of the blood sufficiently to start perspiration. Most patients will perspire freely in from six to ten minutes without the temperature of the air in the cabinet getting above 105° or 110°. In fact the temperature of the air is entirely incidental. The light not only acts by the heat which it conducts into the body, but there seems to be some direct stimulation of the sudorific cells from the light itself.

The importance of a healthy skin is not limited to conditions requiring rapid diaphoresis. The skin is one of the largest organs of the body and one of the most important. Not only is it one of the most important emunctories which should be constantly active, but upon it depends the adjustment of the temperature of the body and the distribution of the blood. The blood vessels of the skin are capable of containing all the blood in the body when fully dilated. The blood vessels of the skin in health undergo constant re-adjustment to meet the external changes in temperature and the internal needs. In nearly all chronic invalids the skin is sallow and bloodless. Such patients generally suffer from catarrhal conditions of some of the mucous membranes of the respiratory or digestive tract, caused by the constant engorgement of the vessels with blood which has been driven in from the surface. I have already remarked that Abrams has shown that chronic nervous depression may result from the stagnation of blood in the abdominal veins. This and other chronic engorgements are very frequently the result of the inactive and bloodless condition of the skin. It must be very evident, then, that the important indication in nearly all chronic conditions is to restore the balance of circulation by drawing the blood once more to the surface. From this we can see the benefit which results from repeated applications which tend to dilate the surface vessels and to establish the circulation there. For this purpose the short cold applications which are followed by a tonic reaction of the skin, or friction applications, such as the moist mitten friction, the salt rub and other procedures which leave the skin with the blood vessels all full, as is shown by the ruddy glow, are best. The repeated contractions and dilatations of the blood vessels during treatments of this kind afford a course of gymnastics for the skin, which trains it to adjust itself promptly to any external changes in temperature, so that such patients are quite immune to colds and other disturbances due to a debilitated skin. Hydriatic applications do more to restore the balance of circulation, relieve internal congestion and to establish a healthy activity of the skin than any other means at our command.

Elimination through the kidneys is greatly facilitated by free water drinking. Water is nature's diuretic and should doubtless be used more freely than it is in many chronic conditions. Elimination through the bowels may be facilitated, not only by free water drinking, but by the enema and colon clyster which are quite as effective and less objectionable than most means of catharsis.

E. The most pressing service which is required of a physician is the relief of special symptoms, and it is here that palliative measures in the form of drugs have their greatest use. Too frequently, however, such palliation is secured only at the expense of the future welfare of the patient. For this reason there is a growing desire to avoid the use of many of the older medicinal remedies for the palliation of symptoms. It will only be possible in the closing section of this paper to refer very briefly to a few of such symptoms as examples of the wide range of hydrotherapy.

The hydriatic treatment of fever is now so well recognized that it is hardly necessary for me to speak of it in detail. Cold bathing was formerly used principally in typhoid fever, but this treatment has been extended until it has been demonstrated that fever in nearly every condition can be properly met by some form of hydrotheropy. Wherever fever exists there is a marked ability to react, so there is little danger of undue depression after cold baths. I now recall a case of anemia apparently of the pernicious type, following some months after the puerperal state. The blood was reduced to 35%. This patient suddenly developed a high fever running between 106° and 107°. The fever seemed to be the principal symptom, and to meet it, the patient was placed in a warm bath at 95°, the temperature of which was gradually but rapidly lowered to 70° with the addition of friction. This promptly brought the temperature down several degrees without any shock to the patient. The temperature gradually returned after several hours, when the bath was repeated. The fever subsided after a few days, after which the patient made a rapid gain in red cells and hemoglobin. I refer to this to show that antipyretic baths can be used even in pronounced anemia. In many cases, however, it is better to substitute for the cold bath such measures as cold sponging, cold towel rub or the wet sheet pack. There are asthenic cases also in which, while the internal temperature is high, the skin is cold and clammy. In such cases the hot sponging is preferable as an antiphlogistic measure to any form of cold applications. The blood is brought to the surface by the short hot application and is there cooled off by evaporation, which should be encouraged. Another measure for reducing temperature, which is very serviceable in private practice, is the cold enema. It often happens that the enema is indicated in acute fevers in order to clear the bowels of waste and toxic substances. But in addition to this the cold enema abstracts heat and rapidly lowers the temperature. For this purpose, as much water as possible should be slowly injected at a temperature of from 60° to 70° and retained for several minutes to a half hour if possible. There is not only an immediate reduction in the temperature by the abstraction of heat, but a very favorable influence is exerted on the kidneys, which are flushed out by the water which is absorbed through the bowel. In cases where the fever is accompanied by localized congestion, the treatment may be directed, not only to the reduction of temperature, but to the relief of the congested area. In pneumonia, for instance, it is desirable, not only to keep the general bodily temperature down, but especially to relieve the engorgement of the pulmonary vessels. As an illustration, I might refer to a case which came under my care. The patient, Mrs. P., aged thirty, suddenly developed the cardinal symptoms of pneumonia, — chill, slight cough, pain in left side, and fever which soon reached 105° and later 106°. Pulse, 120. Respiration, 30. On the second day bronchial breathing and loss of resonance were very pronounced over lower lobe of the left lung, especially at the back. Treatment consisted of cold compresses over the left side of chest and changed every ten minutes; later, every twenty minutes. Every two hours hot compresses were applied, especially over the seat of the pain. Cold frictions, and cold towel rubs were applied several times a day, both to combat the fever and to increase vital resistance. During the early stage, the general cold application was preceded by a warm leg pack, which lessened pulmonary congestion by its derivative action. The temperature, which when not influenced by treatment, persisted at 105° to 106°, was further combated by wet sheet packs and cold enemas. On the third day the pain was less, the breathing easier, the pulse not above 100, and the temperature between 103° and 104.° On the fifth day the temperature dropped to normal where it remained, leaving the patient otherwise comfortable and convalescent. So here we see illustrated the possibility of applying at the same time more than one method of influencing the circulation. The blood vessels of the lungs were caused to contract reflexly by the cold applications to the chest. Simultaneously the blood was drawn into the lower part of the body by the hot pack to the feet and legs.

The symptom for which patients most urgently demand relief is pain, and anodynes constitute the principal weapon in the medicine case of the physician; yet every physician, no doubt, has experienced a moral qualm at being compelled to use them. While it must be admitted that anodynes are of great service to the practitioner in extreme cases, and their use could hardly be dispensed with entirely, yet it is probably true that nine tenths of the minor aches and pains for which anodynes are promptly given could be controlled by less harmful means. Pain may be either of a congestive or neuralgic nature. When of the congestive type, cold is indicated to relieve the congestion. Cold compresses to the head, in conjunction with the hot foot or leg bath, will promptly relieve a congestive headache. Pelvic pain, due to congestion, may be relieved by the ice bag applied to the hypogastrium in conjunction with the hot hip and leg pack. Often after laparotomy for pelvic operations when it is undesirable to use morphine, I have seen the pain caused by the reactionary congestion of this region greatly relieved by a hot leg pack which draws the blood away from the pelvis, accompanied by an ice bag placed between the thighs, which by reflex contraction of the blood vessels further tends to relieve the pelvic viscera.

Pain of a neuralgic character, on the other hand, calls for heat. Neuralgia is the cry of the nerves for blood. Heat increases the blood supply. The best means of applying such heat locally is the very hot fomentation. I have seen the most magic results follow this simple procedure, when properly applied. It is seldom that a pain is encountered that may not be promptly relieved by some application of heat. Deeper seated and more extensive pain, as lumbago, sciatica, etc., when not relieved by simple application of heat, may almost invariably be dispelled by the Scotch douche, consisting of a local douche of considerable force, as hot as the patient can endure, applied for two to four minutes and followed by a cold jet of a few seconds. In private practice, the hot pour may be substituted for this by placing the patient in a bath tub, and letting water fall for some distance upon the part treated. Pain in the pelvic region can, in many cases, be relieved by the hot enema, repeated if necessary. A short, very hot, sitz bath (112°–120°) is a most excellent means of relieving chronic pelvic pain. It should be continued six to eight minutes, and instantly followed by a dash of cold water on the hips.

Constipation is a symptom which affords an excellent illustration of the utility of hydrotherapy. Already the enema is coming into general favor in preference to irritating cathartics as a means of palliating this symptom. I have not infrequently seen this trouble radically cured, moreover, by the simple expedient of injecting into the bowel a glassful of cold water on rising, to be retained until after breakfast. The stimulating effect of cold water on the peristaltic action of the colon is sufficient to produce a natural action of this organ; and in the course of one or two weeks, the enema can be dispensed with, the bowel having regained its normal activity. The enema habit may also be broken off, in those accustomed to large warm enemas, by lowering the temperature of the water each day five degrees, and lessening the amount one-half pint. The peristaltic action may also be stimulated by hot and cold applications over the abdomen; also, by hot and cold over the liver to increase the flow of bile. By massage and abdominal exercises, the action of the intestines may be mechanically assisted, while the sinusoidal current is of the greatest assistance in stimulating a normal activity. By the use of these and many other physical applications which modern science affords, this symptom in its most obstinate form may be radically cured without resorting to purgatives which irritate and derange other parts of the digestive tract, and which, at best, tend to fasten on the patient the cathartic habit.

The last symptom which I shall use to illustrate the value of hydrotherapy is one which is only too often met in these days of increasing nervous trouble. I refer to insomnia. In this, as in all symptoms, a course of rational treatment will be directed to the cure of the fundamental condition of which this symptom is a part. But among the palliative measures, I will take time to refer but to one or two of the most useful. Neutral applications have a decidedly quieting and calmative effect upon the nervous system. Where insomnia is due to nervous irritability, it is often truly gratifying to witness the transformation in the patient under the influence of a neutral bath. This bath, which may be given in any modern household consists of a full bath at the temperature of the skin. The temperature of the water should be kept within the limits of 94°–96°. Not infrequently the patient lapses from a state of almost intolerable restlessness into a state of repose and even quiet sleep while still in the bath. The neutral bath should always be continued for a considerable time; never less than one half to three quarters of an hour and from that to an hour and a half or two hours, if necessary, in order to get the desired and lasting result. Another exceedingly sedative application is the wet sheet pack, continued to and prolonged in the neutral stage. I have more than once seen the victims of insomnia pass into a quiet sleep while snugly enveloped in this application. Where the symptom is a result of cerebral congestion, derivative applications, as the warm leg bath, will often produce the most happy results. The wet girdle applied to the abdomen and covered with flannel and mackintosh acts not only as a partial pack and nerve sedative, but, by dilating permanently the abdominal vessels, helps to relieve the cerebral congestion. Without referring to special cases, I can say that I have used these and other hydriatic methods with the most gratifying results in the treatment of hundreds of cases of insomnia accompanying almost every form of nervous disorders, from simple neurasthenia to cases of nervous exhaustion bordering on mania. In all these cases the hydriatic treatment is accompanied by other physiologic methods, such as electricity, massage, mechanical vibrations, careful attention to diet, etc., all of which are necessary in the reconstruction of chronic invalids.

It has been the aim of this hastily prepared paper to review briefly some of the fundamental principles which should be a guide to us in making applications of hydrotherapy. From my own experience, covering a number of years in an institution where hydrotherapy is largely employed, as well as from reports from similar institutions elsewhere, I am fully convinced that hydrotherapy, while not a panacea, has a very wide range of applicability. Of course, it will find its greatest efficiency in well equipped institutions where especially constructed apparatus and appliances can be utilized. Nevertheless, I have attempted in the present paper to point out more especially the simple fundamental principles which can be utilized in many ways in every household, and to call attention to such special treatments as would be of most service to the general practitioner.

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Yale Medical School. — At a meeting of the Yale Corporation held on Monday, Nov. 19, a gift of $50,000 from an anonymous donor for the endowment of a professorship in medicine in the Yale Medical School in memory of Dr. John Slade Ely, who died last spring, was announced. An important advance was decided upon in connection with admission to the medical school, to go into effect in September, 1909. Candidates must present testimonials of moral character and must fulfill certain educational requirements. — *New York Med. Jour.*

Boston City Hospital.

CASES SHOWN BY THE STAFF AT THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION, JUNE, 1906.

(Concluded from No. 21, p. 618.)

FOUR CASES OF THORACIC ANEURISM.

BY CHARLES F. WITHINGTON, M.D.

This group consists of two in which the diagnosis depends for its certainty upon radiographs which are passed about for inspection.

The first, a man of thirty-four, denies syphilis, but has had several attacks of rheumatism. His symptoms (dyspnea, cough and edema) are of seven weeks' duration. There are systolic and diastolic cardiac murmurs, marked anasarca and enlarged and weakened heart. It might appear that this was all, but that there is a slight pupillary inequality, and at the level of the second rib the transverse dullness is 11 cm. The radiograph shows a shadow of equal size. There are no other physical signs of aneurism.

In the second case, a man of forty-eight, the transverse dullness at the base is larger (16 cm.), and the radiograph shows a distinct bulging of the outline of the shadow toward the left of the descending arch. Pupils and pulses are equal. There is a slight tracheal tug but no other physical signs of aneurism. History, alcoholic, but not venereal. Some dyspnea, cough, wheezing and dysphagia (pressure on bronchi and esophagus).

I pass about, in this connection, a radiograph which proved misleading in its suggestion of aneurism in a negress of about forty years. It shows a broad shadow at the base, which corresponded with increased lateral dullness on percussion. The autopsy showed the very contracted pulmonic orifice, which you see in this specimen, the lumen hardly bigger than a quill, with enormous hypertrophy of the right ventricle and right auricle, and it was the latter, and no aneurism, which caused the basal dullness and the radiographic shadow.

Two other cases are well advanced aneurisms. The first, in a man of sixty years, has eroded the sternum and second rib, and is pulsing under the hand with hardly more than skin to cover it. The left chest is flat, either due to great compression of the lung or to fluid. A recent tap was dry. (Autopsy, a few days later, showed the left lung wholly compressed by a large aneurism which had eroded both sternum and the body of a vertebra, exposing the cord.)

The remaining case is interesting because we have been able to study him here for two years. He is syphilitic and alcoholic, forty-six years old. The diagnosis was made in March, 1904. At the level of the second rib the transverse dullness was then 14½ cm., one year later 15 cm., now 16 cm. Two years ago the pupils were alike, no tug, slight pulsation in left second interspace, no murmurs. This radiograph shows the condition at that time. In March, 1905, the right radial pulse was stronger than the left, a tracheal tug, a systolic murmur.

He has continued to work much of the time, and says he has lately sawed wood. There is now marked bulging and pulsation, and there is an area of dullness in the left back, beginning 6 cm. above the angle of the scapula and extending from the vertebræ 12 cm. laterally.

This slowly growing aneurism, which we have followed now for twenty-six months, is obviously near its end.

Dr. Withington also showed

A DOZEN CONVALESCENT CASES OF CEREBROSPINAL MENINGITIS.

The first patient illustrates the unfortunately rare cases of mild type. He is a man of twenty-five years who stopped work, two weeks before admission, on account of malaise and pain in the head and back. Twice he vomited. He had herpes, a slight double Kernig, very little rigidity. Typhoid was excluded. He was not very sick. Lumbar puncture showed the characteristic intracellular diplococci. This is the third week in the hospital and he is nearly well.

A somewhat similar case is this of Annie M., aged seventeen. She had frontal headache and a history of chill, vomiting and delirium. She was sent to the Gynecological Department, the symptoms being thought due to delayed establishment of catamenial function. Finally, the symptoms continuing, with hyperesthesia, photophobia and some rigidity, a lumbar puncture was made. For the first time in my experience with this operation, free blood was withdrawn through the needle. No untoward effects followed, and two days later turbid cerebrospinal fluid, containing the characteristic organisms, was withdrawn. It is quite exceptional for diplococci to be found so late in the disease as this. Immediately after this puncture, the temperature fell and the patient made a good recovery. This young girl was one of the sickest whom we have had recover. She came in after three days of headache, with extreme opisthotonos, the head pulled back to more than a right angle with the body. In five days her delirium had gone, and she was well in twenty-five days, with no residual disabilities.

Like many of the others, she had at the height of the disease ocular paralysis. The left pupil was the larger. In many cases there was strabismus, in one ptosis. This patient[4] had a more disastrous eye experience. He entered, dazed, with vomiting and some pain in the neck, a fine eruption on abdomen, chest, legs and feet. There was marked conjunctivitis of the left eye. The next day the anterior chamber was cloudy and the ophthalmologist found the whole eye full of pus — a panophthalmitis. He recovered with only the loss of this eye. An interesting inquiry is whether the eye became infected from the meninges or whether it was the original port of infection. No characteristic diplococci were found in the lid and no lumbar puncture was done.

Here is a girl who was taken sick just two months ago. About an ounce of turbid fluid was withdrawn on entrance. She had a paresis of the right arm for a time, but has wholly recovered from it.

This lad showed a late danger of the disease, viz., myocardial weakness. He was very sick last year for many weeks, and on sitting up in bed nearly collapsed. But after being kept on his back two weeks he was better, and now has an excellent pulse and no symptoms.

Two of these other boys showed rather protracted mental symptoms. Like many of the others they were delirious at the height of the disease. One of them, who became deaf, was confused in his mind for a fortnight, and the other, who was the sicker, had delusions and was slow in his mental processes for three or four weeks. He did not recognize his visitors for a month. He is now perfectly alert and active.

Here is a row of cases that have been left with permanent deafness. Dr. Leland has kindly examined them and will speak of the conditions. In some there has been middle ear disease, and in others disease of the cochlea. One of the latter cases shows considerable staggering in the gait. This patient, by the way, an

Italian, is one of the few in whom a positive agglutination test, analogous to the Widal test in typhoid fever, has been demonstrated. His blood serum agglutinated a culture of Diplococci meningitidis, soon after his admission.

PHILIP COOMBS KNAPP, M.D., showed the following cases:

1. FACIAL PARALYSIS. NERVE ANASTOMOSIS.

This patient has had facial paralysis, following mastoid disease, for seven years. Six months ago Dr. Lund operated upon her, suturing the facial nerve to the hypoglossal. As can be easily seen, she is beginning to have some motion of the facial muscles, being able to draw the angle of the mouth upward and partially to close the eye. Since the operation galvanism and massage have been persistently employed.

2. FACIAL PARALYSIS. NERVE ANASTOMOSIS.

This patient has had facial paralysis for sixteen years, following mastoid disease. The wasting of the paralyzed side of the face is evident. Dr. Blake operated on her three months ago. The operation proved extremely difficult and the facial nerve was much degenerated. It was attached to the hypoglossal. She has not yet regained motion, but she says the face feels as if it had more life in it, and at times it seems as if there were a faint twitch of the corner of the mouth. A third case, also operated on by Dr. Lund, has failed to appear. In this case the paralysis was of only about a year's duration, and now, fifteen months after the operation, after the persistent use of galvanism and massage, she has very good control of the face.

3. INJURY OF SPINAL CORD, BROWN-SEQUARD SYNDROME.

This man fell some twenty feet, striking his head and neck. When first seen there was marked loss of power in all the limbs, greater upon the right side, where there was complete inability to move the leg. He regained the power in the left side rather rapidly, and in the right side more slowly, until now he is able to walk fairly well, dragging the right foot a trifle, as you can see. The knee jerks are greater on the right side, but there has never been a Babinski or Oppenheim reflex. The tactile sensibility was never affected, but there has been a well-marked blunting of sensibility to pain and temperature on the left side — the side opposite to the side most paralyzed, a typical Brown-Séquard syndrome due to unilateral injury of the cord. The sensory disturbances, however, have well-nigh disappeared, and the man is gaining steadily, — a proof that the lesion was not of great extent.

4. CEREBRAL INFANTILE PARALYSIS. ATHETOID MOVEMENTS.

This young girl, aged thirteen, at the age of two and a half years had a tonic attack followed by slight convulsive movements in the right arm and leg. The right side was paralyzed for six weeks, and since then it has not been quite as strong as the left, and you can observe in the hand slight athetoid movements. The knee jerk is greater on the right and there is slight spasticity of the leg.

5. CEREBELLAR HUMOR.

This little girl, aged six, had measles four months ago, followed by a submaxillary abscess. Two months ago she began to have difficulty in going over the stairs, and a staggering gait. Six weeks ago, when she first came under observation, she had considerable frontal headache, constant vertigo, mental torpor, somnolence, failure of memory and occasional diplopia. She staggered to the right on walking. The pupils were a little sluggish, and the sensibility not quite so good on the right side. There was marked optic neuritis. Soon after this she vomited occasionally. Every symptom has now disappeared, except the optic neuritis, and that has diminished. She feels perfectly well, and walks and runs normally. She has taken fair doses of iodide. The symptoms were strongly suggestive of cerebellar humor, probably tubercular. The rapid improvement indicates either that the growth is becoming encapsulated, or that we had to do with a hydrocephalus.

6. LESION OF PONS, PROBABLY SPECIFIC.

This young woman six months ago began to have a peripheral right facial paralysis, deafness and paralysis and atrophy of the right half of the tongue. The deafness is not due to middle ear disease, but is probably of nerve origin. The symptoms, except for the tongue, were thus suggestive of a lesion at the right cerebello-pontine angle, but the involvement of the tongue shows that the trouble had extended downwards. Six weeks ago she suddenly developed a right hemiplegia. We must either assume a second lesion in the left hemisphere, or else that the trouble extended downwards, below the decussation of the pyramids, so as to involve the motor tract below that point. Under heavy doses of iodide, with mercury, the hemiplegia has practically disappeared, an exaggerated knee jerk being the only evidence of it. The facial and lingual paralysis and the deafness remain unchanged.

7. JUVENILE GENERAL PARALYSIS.

This boy of fifteen undoubtedly has hereditary spyhilis, and had various cutaneous manifestations in infancy. He was in fair health after that, developed normally, and did fairly at school until three years ago, although always irritable and nervous. Three years ago, he began to lose his memory and two years ago was unable to keep up with his class in school. A year ago, when I first saw him, there was marked mental failure. occasional incontinence of urine and feces, slurring of speech, loss of knee jerks and unequal pupils which reacted very sluggishly to light, though readily to accommodation. The handwriting, as the specimen shows, is characteristic of general paralysis. There was a slight papillitis in both eyes, as has occasionally been observed in general paralysis. During the past year the mental deterioration has progressed. He can rarely be induced to talk and he cannot tell where he lives, or talk connectedly. The incontinence has grown worse. Three months ago he became unconscious for forty-eight hours, and three days ago he had an attack of right hemiplegia which persists. The progressive dementia combined with the physical signs render it very probable that this is one of the increasing number of cases of juvenile general paralysis.

The following cases were shown by F. J. Cotton, M.D.:

ELBOW FRACTURE.

CASE I. J. C., age twenty, two years ago got his left elbow caught in machinery and torn open and crushed. There was a fracture of the lower end of the humerus and it was necessary to remove the whole of the external condyle. It healed clean despite extensive crushing.

He now shows some considerable gunstock deformity, but all motions are normal and he has a powerful arm which, as you can see, is as useful as ever.

Case II. J. J. O'Brien shows the end result of a supracondylar osteotomy done for the correction of severe gunstock deformity following fracture above the joint. After the operation there was for a time a good deal of rigidity. The boy is now fifteen, has grown a good deal and has to-day an arm that has practically the normal range of motion and shows no deformity.

Four cases of each type were shown to illustrate the common forms of elbow fracture in children, *i. e.*, supracondylar fractures and separations of the external condyle. All the supracondylar fractures showed varying degrees of the deformity we call "gunstock," but no other deformity. The external condylar cases did not show (as they never do and never can) any gunstock deformity, but did show local deformity caused by bone-overgrowth about the external condyle. One case showed very well the fact that this deformity results not from displacement of the fragment, but from excessive callus growth just above it on the outer side of the elbow.

REVERSED POTTS FRACTURE. DEFORMITY.

This case is shown to demonstrate the relative unimportance of *inward* displacement at the ankle. This case was one of reversed Potts with much splintering of the fibula that resisted all attempts to reduce it without incision. There is marked deformity as a result, but unlike the cases where the displacement is outward the disability is trifling and the patient, although a large man, gets around perfectly well.

FRACTURE OF THE OS CALCIS.

Two cases were shown to illustrate the considerable deformity and the disability that in greater or less degree results from this rather neglected fracture.

Attention was called to the thickening below the external malleolus, due to the spreading of the os calcis, a sign more readily made out than the broadened heel and one which seems to be constant in this type of calcis fractures, *i. e.*, those in which there is crushing of bone. Apparently this diagnostic sign has never been described, but has proven very useful.

EXCISION OF THE WRIST FOR TUBERCULOSIS.

The case shown was in a young woman, previously operated on elsewhere for metacarpal tuberculosis in whom an abscess had developed on the back of the wrist which proved at operation to originate from the carpal bones.

A typical excision was done and now at two months the wound is soundly healed, the fingers can already be moved fairly well and there is every prospect of an entire cure.

GENERAL PERITONITIS FROM APPENDICITIS.

By mere chance I found this boy, now a convalescent from pneumonia, in the wards of Dr. Withington, who has kindly loaned him to me to show.

On July 22, 1904, he fell while running, striking on his hand in such fashion as to drive his own right elbow against his abdomen near McBurney's point. He was then a slim youngster of fourteen years with a sharp elbow. He suffered a good deal of pain, and next day came to the Accident Room and was seen by a senior house officer who diagnosed a contusion only and sent him home. Next day he returned obviously very ill and was admitted.

When I saw him shortly after he came in he showed tenderness, spasm of the whole abdomen, and more especially of the right lower quadrant. He was not distended, but showed in all other respects a typical moderately severe general peritonitis from appendicitis. He denied any abdominal trouble previous to two days before.

Under ether an incision was made to the outer side of the rectus. There was much thin pus free in the abdomen, but no obvious fecal matter. The pus was most plentiful in the pelvis. The appendix was found pointing down, back and out, and bound down by a short meso-appendix and by adhesions. The tip lay near the femoral vessels tied down firmly. The appendix had to be removed by amputating it and removing the base first. The tip was dirty and sloughing, and about one-half way down from the tip on the anterior surface was a gap in the serous membrane and partly into the muscle layer, obviously not a fresh tear, presumably the result of the trauma. There was marked injection of the peritoneum. Some much infiltrated omentum was ligated and cut away. A counter-incision was made on the left and the abdomen thoroughly washed out with salt solution. The usual drainage wicks were inserted without tubes. The boy's condition at the close was poor and 10 ccm. of adrenalin solution in salt solution was injected under the skin. Save for an unexplained collapse following an adrenalin injection on the fourth day, he did perfectly well. Adrenalin in doses of 4 up to 10 ccm. a day given subcutaneously in salt solution was continued for several days.

The wicks were started after four days, removed and replaced at six days. He left the hospital after a little less than four weeks with trifling granulating wounds which soon healed. There has been no trouble since.

Now as you see, the wounds are both solid; there are no herniæ and no weak spots, and the boy's condition is good despite the recent pneumonia.

The case is interesting because it seems to have resulted from trauma to an old adherent appendix, because he recovered from a general peritonitis and because this recovery seemed to have been assisted by, if it was not due to, the use of adrenalin as a stimulant. Adrenalin has been used by the writer and by others in many cases as a vaso-motor stimulant and seems to be particularly serviceable in septic infections, particularly in these general peritonitis cases. This was one of the first of the cases in which it was so used by the writer.

Hart, age fifteen, four days previous to entrance had severe abdominal pain which has increased and has been accompanied with vomiting. On entrance he showed the usual local picture of general peritonitis, but had a fair pulse and was in tolerable condition. Immediate operation showed pus throughout the abdomen and a perforated gangrenous appendix. This was removed, counter incisions were made and the belly irrigated and drained with tubes and wicks. The same treatment was carried out as in the previous case with like results. He has had no trouble since and now shows all scars soundly healed.

Anderson, age seventeen, entered with a history of five days of pain and vomiting and constipation. Local condition as in the other cases, but general condition very poor. Immediate operation showed the abdomen filled with thin pus everywhere. The appendix large, thick and gangrenous. The procedure carried out was as in the other two cases. His convalescence was slow and the intoxication so severe that it seemed he could not have pulled through save for the adrenalin stimulation.

He is now and has been in perfect health, but shows in the scar of the longest incision (alongside the right rectus) a rounded hernial protrusion involving nearly the whole scar. This causes him no trouble, however, and he does not wish to have anything done about it.

FRACTURE NEAR THE ANKLE FROM UNUSUAL CAUSE.

The patient, the x-ray of whose ankle is here shown, is a boy of nine years. Five weeks before I saw him, as he was playing in a boat yard, a heavy boat fell over striking him on the thigh. His knee was flexed at the time and he gives a perfectly definite account of how his foot was forced into exaggerated dorsal flexion. The damage was to the ankle apparently; his family physician, who saw it only once, could make nothing out through the swelling and provisionally called it a sprain. The patient did not return for treatment, but five weeks later came to the out-patient department because he still walked lame. The swelling had gone down and as you may see by this photograph there was obvious, though not great, forward displacement of the foot and ankle. The skiagraph shows, as you will see, a transverse fracture of the tibia not far above the epiphyseal line and apparently subperiosteal with the lower fragment displaced forward and rotated forward and upward. The fibula shows a bend ("green-stick" fracture) with a like displacement.

Two days ago I operated on this case. The anterior surface of the tibia was cut across with the chisel at or slightly above the original point of fracture and the breaking and correction of the ankle completed with a wrench. The wrench used was a modification of the old Thomas wrench, designed by Dr. J. B. Adams, a wrench which locks with a cam, offering obvious advantages over the older form. The ankle was satisfactorily corrected and put up at 45° of plantar flexion which is to be changed for the classic right angle after eight or ten days. So far the case has done well.

The interest of this case is, I think, that we have here a case of transverse fracture of the tibia, produced purely by forced dorsal flexion. So far as I know the case is, in this respect, unique.

GAS BACILLUS INFECTION. AMPUTATION. RECOVERY. SPECIMEN AND CULTURES SHOWN BY DR. GRAY OF THE PATHOLOGICAL DEPARTMENT. CHART AND CLINICAL HISTORY.

BY F. J. COTTON, M.D., AND J. B. BLAKE M.D.

This is a case of multiple compound fracture received by the catching of an arm in a belt gearing. It is unusual in that the arm did perfectly well save for dry gangrene of the thumb and first two finger tips from ischemia. On the fourth day the temperature went up, the wounds were dressed and stitches removed on account of obvious tension; there was some escape of serum, but no pus and no gas. The next day the temperature was still up and there was a fetor readily perceptible several feet away. The patient looked pale, sallow and ill. On removing the dressings there was increased edema and cellulitis of the whole forearm and a few bubbles of gas escaped from the wound below the elbow. The situation was explained to him, and within the hour Dr. Blake had amputated the arm above the elbow. The flaps were left open.

Since the operation, now five days, the temperature has fallen and the infection seems to have been got rid of. The man's condition, though weak, is steadily improving.

Cultures showed the Bacillus aerogenes capsulatus.

J. C. Hubbard, M.D., demonstrated the following series of cases:

APPENDICITIS: UNUSUAL CONDITIONS.

Case I. M. H., female, twenty-three years, in February, 1906, had an exploratory laparotomy done at another hospital. Nothing wrong found and nothing done. Four days before entering the Boston City Hospital had an attack of sharp pain in the right lower quadrant of the abdomen. Vomited. At entrance the pain was referred to the right iliac fossa. Examination showed considerable voluntary spasm and tenderness over the whole abdomen, slight involuntary spasm and dullness in the right lower quadrant. Vaginal examination negative except for tenderness on the right. Urine negative. Operation under ether. Incision through the fibers of the rectus. Few adhesions found about the appendix. Mesentery of the appendix tied off. Appendix divided between clamps. Stump touched with carbolic 95% and alcohol. Pursestring suture in the cecum about the stump and the stump invaginated into the cecum. Suture tied. Mesentery of the cecum found so long that the cecum could be placed in the pelvis or on the left side of the abdomen. Mesentery shortened by making a fold in it by sutures. Cecum then much less movable. Abdominal wall closed in layers.

GALLSTONE FOR THE INTESTINE.

Case II. A gallstone shown which had been removed from the small intestine where it had been wedged causing intestinal obstruction. The stone had in general the shape of the gall bladder, was 2½ inches long and 3 13/16 at its greatest circumference.

RUPTURED LIVER.

Case III. C. C., boy thirteen years, was brought to the Relief Station, March 9, 1906, having fallen down stairs. He had the symptoms of hemorrhage and tenderness over the liver. A diagnosis of rupture of the liver was made. Laparotomy showed free blood in the abdomen and a rupture of the liver on its dome under the diaphragm. Because of its position it was impossible to reach it and pack gauze into the rent. Portion of rib was excised. Pleural cavity walled off by suturing the diaphragm to the upper edge of the wound. Incision made through the diaphragm and hole in the liver packed with gauze. Laparotomy wound closed. Boy made complete recovery.

RUPTURED SPLEEN.

Case IV. B. L., male, twenty-two years, came to the hospital July, 1905, after having fallen off a cliff. Evidences of intra-abdominal injury. Laparotomy showed free blood in the abdominal cavity. Spleen found broken into three pieces. Spleen removed. Abdominal incision closed. Recovery satisfactory. Blood, August, 1905. Leucocytes 10,400; red blood corpuscles, 3,920,000. Differential count, 500 cells; polynuclear leucocytes, 71%; small mononuclear leucocytes, 22%; large mononuclear leucocytes, 6.40%; myelocytes, 6% to 10%. No blasts.

ACUTE EPIPHYSITIS, FEMUR.

Case V. P. M., male, fifteen months, entered the hospital April 1, 1905, with signs of abscess of hip joint. Numerous incisions made into the hip joint for drainage. Large amount of pus. Capsule of joint entirely destroyed. Head of femur dislocated upward and backward. Rubber drainage tubes. Thigh put up at right angles with extension. April 13, drainage tubes omitted and thigh lowered. May 4, wounds nearly healed. X-ray showed head of bone in position. September, 1905, motions of thigh are not limited. Head of bone in place. Walks with no limp.

SEPTIC ARTHRITIS, KNEE.

Case VI. W. H., nine years, May 26, 1904, knee joint infected from a lacerated wound. Joint incised on either side of the patella and through the popliteal space. Joint irrigated. Rubber tubes for drainage. Ham splint. Discharged from the hospital during the latter part of July with a stiff knee. Has been having massage in the out-patient department. Now has free motion up to a right angle. No limp.

ACUTE APPENDICITIS.

Case VII. Several patients who had had acute appendicitis were shown to illustrate the method of treatment. Incision to the inner side of the mass. Walling off. Mass broken up. Appendix removed and abscess drained. If any increase in the free fluid of the peritoneal cavity or if any peritonitis spreading to the pelvis a stab wound in the median line above the pubes and a rubber tube wound with gauze and rubber tissue placed through the stab wound to the bottom of the pelvis. Head of bed raised and constant rectal injection of salt solution started as soon as possible. One boy absorbed 12 pints in twenty-four hours.

ARTERIO-VENOUS ANASTOMOSIS.

Case VIII. D. C., male, eighty years, came to the hospital April 28, 1906, for dry gangrenous toe resulting from arteriosclerosis. Gangrene slowly spread. May 10 arterio-venous anastomosis between femoral artery and vein in Scarpa's triangle. Leg has never swollen or been cold. Its nourishment has apparently been satisfactory. Gangrene has slowly spread till the lower half of the foot has become blue and a line of demarcation appeared. It has seemed to me fair to suppose that the operation has been of benefit and the anastomosis a success, for had the anastomosis not functioned it is not probable that the collateral circulation, too poor before the operation to prevent gangrene of the foot, could have been sufficient through the profunda alone to have prevented very rapid gangrene of the whole leg.

BULLET WOUNDS OF THE INTESTINE.

BY L. R. G. CRANDON, M.D.

Mabel M., aged twenty, entered the hospital May 4, 1906, two hours after shooting herself, by accident, in the abdomen with a .38 caliber pistol.

Physical examination: Pulse 100, good quality; temperature 98°; no vomiting; slight general abdominal tenderness. Abdomen shows a lacerated wound, apparently of entrance, two inches below and to the left of the umbilicus. Slight general tenderness and spasm of the whole abdomen; no distention; generally tympanitic.

A hard body, apparently a bullet, felt in a large hematoma outside the wing of the right ilium.

Operation. — Under ether, immediate median celiotomy, the skin incision being slightly oblique to go through the wound of entrance. Free gas and intestinal contents were found in the abdominal cavity. Nine holes were found in the small intestine, in all parts of it; one hole went through the base of the appendix, and one large tear was found in the transverse colon. There was free arterial bleeding from mesenteric arteries at two places.

Separate wounds of intestine were closed with catgut stitches through the serosa by right-angled continuous sutures, after the manner of Cushing, one row only. At one part of the jejunum four large adjacent rents made it seem best to resect three inches of gut. This was done and end-to-end sutures made without button or other special device. Chromic gut was used for the through-and-through layer of stitches.

So far as was possible, every part of the intestine which had been sutured was placed in a superficial position in the abdominal cavity, and gauze was carried through the abdominal wound to the site of the intestinal sutures. The operation took one hour. The three inches of gut resected, on examination, was found to contain as many inches of tapeworm. The bullet was removed later, under cocaine, from the hematoma on the side. The bullet was found to have penetrated the wing of the right ilium.

Two weeks later, a large residual abscess developed in the right iliac fossa, near the site of exit of the bullet, where the bullet had amputated the appendix; this was drained.

Four weeks after the operation, a vermifuge brought forth all of the tapeworm which had not been removed surgically.

Patient discharged healed and well at the end of six weeks.

Franklin W. White, M.D., showed the following cases:

SIX CASES OF GASTRIC ULCER.

Two cases of acute ulcer with hematemesis illustrating the typical course of the disease, with apparently complete recovery after medical treatment consisting of rest in bed for ten days and Leube's ulcer diet.

Four cases of chronic ulcer, of one to three years' duration, with recurrent attacks of epigastric pain and hematemesis; 2 of these completely healed after gastro-enterostomy, and 2 cases in which no improvement occurred after gastro-enterostomy.

Five cases of achylia gastrica, 4 simple primary cases, 1 secondary to chronic gastric catarrh; 2 in vigorous young men, 3 in old men, resembling gastric cancer. These cases illustrated the frequency of the condition, the lack of typical symptoms, the characteristic gastric contents, the occasional resemblance to cancer, the satisfactory results of hygienic and dietetic treatment.

FIVE CASES OF BENIGN MOTOR INSUFFICIENCY OF THE STOMACH.

Two mild cases associated with gastroptosis and atony, 2 cases of moderate grade due to obstruction from ulcer scars or adhesions about the pylorus. These cases illustrated the entire relief of symptoms which may be obtained in moderate grades of gastric stasis by medical treatment alone, consisting of stomach washing, finely divided food and tonic treatment.

One case of typical severe benign stenosis of the pylorus due to an ulcer scar and adhesions, characterized by persistent vomiting, thirst, malnutrition, constipation, whose fasting stomach contained a large food residue, plenty of free HCl., sarcinæ and yeast. Symptoms only partially relieved by lavage, diet, etc. — an appropriate case for surgical treatment.

SIX CASES OF GASTRIC AND ONE OF INTESTINAL CANCER.

Two typical late cases of gastric cancer with anemia, marked loss of weight, persistent vomiting, pain, palpable tumor, anacid stomach contents with food residue, blood and lactic acid fermentation.

One case of cancer of the lesser curvature of the stomach with slight and gradual loss of weight and insignificant digestive symptoms illustrating the latest course of gastric cancer when the pylorus is not obstructed, and the diagnostic value of constant gastric anacidity and the permanent presence of occult blood in the feces.

Three typical cases of well-developed gastric cancer with obstruction of the pylorus, — 2 primary, 1 growing upon a previous ulcer. In these cases a resection of the stomach with removal of two thirds to four fifths of the organ and gastro-jejunostomy had been done three to five months previous. These patients beautifully illustrated the immediate benefits of operation, namely, entire relief of symptoms, gain in strength, and rapid gain in weight, from 15 to 20 pounds in a few months in each case.

One case of annular cancer of the ascending colon with moderate digestive disturbance for eight months and an apple-sized tumor to the right of the navel. Resection of the colon two and one-half months previous with entire relief of symptoms and gain of 23 pounds in weight.

CHRONIC ARTHRITIS.

BY EDWIN ALLEN LOCKE, M.D.

The cases shown at this clinic were selected from those treated during the past year in a special clinic maintained as part of the general medical out-patient department. Sixteen cases representing all the types of chronic arthritis were exhibited each day. Our purpose in this clinical demonstration was three-fold: first, to present the possibilities of a special clinic for the treatment of arthritis in hospital practice and the best method of conducting it; second, to illustrate the various types of chronic joint disease together with the means of diagnosis, and third, to demonstrate the methods employed by us in the treatment of these conditions, and in general the results to be expected.

The division of chronic arthritis, according to the scheme of Drs. Goldthwait, Painter and Osgood, into (1) villous arthritis, (2) infectious arthritis, (3) atropic arthritis, (4) hypertrophic arthritis, (5) chronic gout, offers, according to our experience, the best working basis for treatment, each class in certain details requiring the application of methods not indicated for the others. Examples of all these types, except chronic gout, were shown as well as the special system of records employed. With the patients were also exhibited photographs and skiagraphs of the affected joints, and emphasis laid on their importance in diagnosis. It was in some instances also possible to point out, from the x-rays, indications for special forms of treatment.

Treatment naturally divides itself into three forms, *viz.*, (1) general, (2) medicinal and (3) local. In all cases we have sought by a régime quite similar to that in vogue in the treatment of phthisis to build up the general health of the patient. Medicines were only employed symptomatically, the tonics forming by far the larger group. Throughout the work much emphasis has been placed on the local treatment of the diseased joints. This includes the use of hyperemia, gymnastics and massage, the form and duration of the application varying somewhat with the variety of arthritis present.

It was possible to offer for inspection a considerable number of patients who had been under treatment for periods varying from a few weeks to a few months, and the results were, in nearly all, satisfactory; in some very striking. The final results must necessarily depend largely upon two factors: First, the stage of the disease at which a diagnosis is made, and second, the skill and persistence with which a régime of treatment is carried out. In general our experience leads us to believe that an arrest of the process is possible in a majority of cases, and a complete cure can be effected in a considerable number. In the most advanced stages one can usually relieve, sometimes arrest, but practically never cure.

I am deeply indebted to Drs. H. Dana and A. L. Collins who arranged and conducted the above clinic.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

SIMULATION AND INSANITY.

Schott [1] reports two cases of suspected simulation of insanity, and from a study of these and the literature comes to the following conclusions: It seems questionable whether pure simulation of mental disturbance ever occurs in those who are mentally completely sound. At any rate it is extremely rare. Simulation of insanity is found most commonly in degenerate individuals, and is to be regarded as an outcome of degeneration. The confession of simulation or the detection of the simulant proves nothing for the mental soundness of the individual. In these cases the task of the observer is to prove the mental soundness of the accused. All doubtful cases of simulation demand constant, intelligent observation in a clinic or asylum. If in complicated cases the observation of six weeks does not lead to a decisive opinion, we should not hesitate to pronounce our inability to give the opinion and to demand a further period of observation. The medical report on the forensic side will vary according to the degree of degeneration at the basis of the simulation. The former opinion, which was often expressed, that the individual who simulates insanity will finally become actually insane, is not confirmed by more recent investigations. It is much more probable that in some cases the initial symptoms of the psychoses were not recognized, but that they later became definite. There is no characteristic of simulation, but in order to determine it a correct judgment in this as in all other mental conditions requires a thorough examination and an unprejudiced consideration of all the circumstances, and an exhaustive physical and mental investigation of the individual. An accurate study of male hysteria is very desirable, and promises to afford valuable conclusions in regard to the question of simulation.

DELUSIONS OF JEALOUSY.

Delusions of jealousy have usually been regarded as especially characteristic of alcoholic insanity. Többen [2] reports four cases, in only one of which alcohol could be considered, and in this case the mental shock of sudden blindness seemed more important in the production of the mental disease than the alcohol. Ideas of jealousy may arise on any soil which has been predisposed by various injurious influences, and it may appear in varied psychoses as one more or less prominent link in a chain of symptoms. The genesis of the delusion may arise either from pathological changes in the genital organs or the feeling of diminished sexual capacity.

[1] Arch. fur Psychiat., xli, 254, Jan. 1906.
[2] Monatschr. fur Psychiat. und Neurolog., xix, 321, April, 1904.

NEUROGLIA CHANGES IN INSANITY.

Koller[3] has studied the brains in 115 cases of mental disease by Weigert's neuroglia method. Of these cases, 23 were cases of general paralysis, 26 of senile dementia, and 25 of dementia precox. He concludes that the glia is not materially altered in meningitis, psychopathies, periodical insanity, involution, melancholia, chorea, brain tumor and idiocy. All his cases of idiocy, five in number, were cases of the congenital forms. It is possible that idiocy resulting from brain disease of early childhood may show other conditions. Pronounced forms of dementia of youth show a slight increase of the glia elements over the whole cortex. In epilepsy, the glia changes are not always to be detected. When they are present, they may have very different localizations (marginal layer, gliosis of the cornu ammonis). Senile dementia and apoplectic dementia show besides sclerosis of the vessels an increase of the marginal layer in which, as a rule, amyloid bodies are embedded. The fibres are coarser and are of corkscrew or zigzag form. Small spider cells and a slight overgrowth of the glia are very often found in the molecular layer; nuclei, a few fibres and spider cells in the deep cortex, while fibres, nuclei and glia cells are again more numerous in the white matter. In general paralysis the cortical layer as a rule is much increased. The fibres are often thickened, zigzag or corkscrew-like, the vessels are numerous and are accompanied with nuclei and twisted glia fibres. The fibres may very often be followed down into the deep cortex. The overgrowth of glia in connection with the new growth of vessels in the layer between the cortex and the white substance seems especially striking.

PATHOLOGY OF DEMENTIA PRECOX.

De Buck and Deroubaix[4] refer to the results or the histo-pathological examination of eight cases of dementia precox recently published by them,[5] and make suggestions as to the bearing of this and other studies on some of the problems of psychology. In dementia precox they find the changes affecting especially the neurone, with secondary glia increase, while the vascular structures, also the nerve fibres, remain comparatively free from change. They would class it hence as a chronic parenchymatous cerebropathy, in contradistinction to general paresis, senile and organic dementia, in which the interstitial elements are most markedly affected. They have noticed that in dementia precox the pathological changes are specially marked in the frontal lobes, but they could not convince themselves that they were at all confined to the association centers of Flechsig. They have, however, been struck with the difference in the degree of affection of the different cell layers taken vertically. Already Alzheimer and Dunton have noted that the deeper layers of the cortex, especially the layer of polymorphous cells, were chiefly affected in dementia precox. Our authors believe that they have noticed in the cases showing marked catatonic symptoms that the degeneration affected especially a layer of cells situated between the large pyramidal cells, and the polymorphous layer, while in cases which showed paranoid symptoms affecting especially the somatopsyche, there was an almost complete disappearance of the polymorphous layer. This brings up the question as to the relative functions of the different cell layers of the cortex. Comparing the results of other investigators with their own, they think that we may well ask if perhaps the polymorphous layer may not have to do with the phenomena of somatopsychic sensibility and association, if the large pyramids are not in relation with the kinesthetic and the muscular and stereopsychic senses, and if the small and middle-sized pyramidal layers have not a close connection with the superior senses of allopsychic order and their associations.

BLOOD PRESSURE IN DEMENTIA PRECOX.

Lugiato and Ohannessian[6] have studied the blood pressure in 13 cases of dementia precox, and have come to the following conclusions: The blood pressure during the initial period of the disease is generally much below the normal. This is due to a defective development of the cardio-vascular system and to hypotonicity of the cardiac muscle. The blood pressure in the afternoon is generally somewhat higher than in the morning. There is no great difference in the pressure between the right arm and the left, although the pressure in the right arm is usually from 1 to 6 millimetres of mercury higher than in the left. There is an almost perfect correspondence between the pressure curve on the right side and that on the left. The oscillations in the same subject may vary from 20 to 25 millimetres from one day to another, but it does not usually exceed 20 millimetres in any one day. The frequency of the pulse and the respiration is within the normal limits, and does not undergo any very great variations. The physiological relation between the frequency of the one and of the other is almost always preserved. They have found no constant relation between the oscillations of the blood pressure and those of the frequency of the pulse. These two phenomena seem to be independent of each other.

DEMENTIA PRECOX AND PROGRESSIVE SYSTEMATIZED DELIRIUM.

Montyel,[7] an uncompromising opponent of the dementia precox conception of Kraepelin, here combats the conclusions drawn by Deny, a Kraepelin partisan, in his report on dementia precox at the congress at Pau. He especially attacks the placing under the head of dementia paranoides those cases characterized by the progressive development of systematized delusions, the "*délire chronique à évolution systématique*" of French authors, which he insists have little tendency to dementia, any decided mental deterioration not appearing till very late in the disease, and then often being due to some added brain affection. He takes up the arguments of Deny, one by one, and insists that the conception of a psychosis whose characteristic is a rapid destruction of the function of association, as urged by Deny, is incompatible with the building up of a delusional system, which, though starting with false ideas, is sustained by sharp and logical reasoning, the clinical picture observed in chronic deliriants.

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[3] *Ibid.*, 513, June, 1906.

[4] Jour. de Neurolog., vol. xi, no. 1, 1906, and Jour. Nerv. and Ment. Dis., p. 674, no. 10, vol. xxxiii, 1906.

[5] Nevraxe iii, 163.

[6] Rivista Speriment. di Freniat., xxxii, 225, June, 1906.

[7] Jour. de Neurol. vol. x, no. 11, 1906, and Jour. Nerv. and Ment. Dis., p. 290, no. 4, vol. xxxiii, 1906.

GENERAL PARESIS.

Lukacs [8] thinks that in the study of general paresis, attention has heretofore been directed too exclusively to the changes in the nervous system, while in reality, it is being more and more widely recognized that this is a general disease affecting to a greater or less extent all organs. He considers etiology, pathology and pathological anatomy, basing his remarks chiefly on the results of the clinical and anatomical study of fifty cases of general paresis. Besides syphilis, he thinks that other factors, such as heredity or acquired degeneration, tuberculosis and other infectious diseases may play an important rôle in its etiology, and seems to lean toward the auto-intoxication theory. He summarizes his conclusions as follows: 1. The chief factor in the causation of general paresis along with heredity and acquired degeneration is syphilis. 2. To the anatomopathological substratum of paresis next to the changes in the nervous system come atrophy and degeneration of the heart, of the vessels, the parenchymatous organs and the intestinal tract. These alterations, at any rate in part, are primary and not secondary to the changes in the central nervous system. 3. The symptoms of general paresis are due not only to the changes in the nervous system, and the circulatory and trophic disorders, but are in part of toxic origin.

THE MILIARY DISSEMINATED FORM OF BRAIN SYPHILIS AND ITS COMBINATION WITH GENERAL PARALYSIS.

The disseminated distribution of miliary gummata is one of the rarest forms of syphilitic diseases of the brain. In the few observations thus far reported, there have usually been gummatous formations in the surface of the brain, then a diffuse syphilitic infiltration or an extensive flat exudate in connection with larger gummata limited to the meninges or involving the brain substance. Only twice have miliary gummata been found in the ependyma of the lateral ventricle. Sträussler [9] reports two cases of disseminated miliary syphilitic disease of the brain in a pure form, the gummata being limited to the deeper layers of the cortex, while the meninges were not affected. In one case there was gummatous meningitis of the cerebellum, which did not extend beyond it, but which did extend into the substance of the cerebellum. The first case was a man of thirty who had been nervous for a year and then became excited, talkative and full of plans. There were tremor of the tongue, exaggerated reflexes, a slight facial paresis, but no speech defect or change in the pupils. He was euphoric, restless and expansive. For five months he showed periods of exaltation and depression, and then died after a series of convulsions. The brain showed the characteristic lesions of general paralysis, and, in addition, there were a large number of miliary gummata in the cortex of the frontal and temporal regions. These were in relation to the vessels, and were most numerous in the deeper layers. The second case was a man of sixty-four, who for three years had shown signs of mental enfeeblement. He was restless, irritable and disoriented. His speech was impaired, his writing was illegible, and the reflexes were exaggerated. The cortex showed the changes of general paralysis, and in addition a number of miliary gummata in the layers of the small and large pyramidal cells. These had no relation to the blood vessels. The microscope showed a circumscribed necrosis of tissue with an increase and proliferation of the glia cells surrounding it. These changes were regarded as independent of the changes of general paralysis, and showed that gummatous formations may arise in the central nervous system without an implication of the mesodermal tissue.

CORTICAL FOCAL SYMPTOMS IN THE AMNESIC PHASE OF POLYNEURITIC PSYCHOSES.

Kuttner [10] states that in the initial delirious or stuporous stages of polyneuritic psychoses, symptoms of cortical deficit are often observed which are usually of an asymbolic or aphasic type, but they are often overlooked on account of the general mental condition of the patient. He reports the case of an alcoholic, a woman of sixty, in a typical stuporous condition, with disorientation, weakness of memory, and defective attention, who showed marked disturbances in writing, and also a slight amount of paraphasia. A second patient, also alcoholic, manifested symptoms of asymbolism, failing to recognize familiar objects. In addition, he had a well marked paraphasia and agraphia. A third case showed similar disturbances of the speech centres. Another patient, who showed the typical Korsakow symptom complex, showed a total sensory and motor aphasia. Another case showed Jacksonian epilepsy and aphasic disturbances. In yet another case the polyneuritic psychosis developed after a series of epileptiform attack. In this case there was also a hemianesthesia and some slight speech defects. Yet another case began with epileptic attacks, and during the course of the psychosis paresis of the face and tongue developed. These conditions were regarded as due to a localized affection in the different regions of the brain cortex.

Allgemeine Zeitschr. fur Psychiat., vol. lxiii, no. 1, 1906, and Jour. Nerv. and Ment. Dis., p. 671, no. 10, vol. xxxiii, 1906.

[9] Monatschr. fur Psychiat. und Neurolog. xix, 244, March, 1906.

[10] Arch. für Psychiat., xli, 134, Jan., 1906.

MENTAL DISTURBANCES IN MULTIPLE SCLEROSIS.

In 37 cases of multiple sclerosis, Raecke[11] found that 13 showed marked mental enfeeblement, and 9 others forms of mental disturbance. Only in 15 cases was there no mental defect, and these were in the early stages of the disease. From a study of reported cases, he finds that the mental disturbances of the initial stage show, in the first place, depressive and maniacal types or a mixture of delirious episodes with confusion, hallucinations and varied delusions. Such delirious conditions are apt to follow epileptiform or hysterical attacks, and may alternate with more stuporous conditions. In younger patients, the maniacal excitement may be more violent and may have childish, foolish or erotic characteristics, with anger, irritability and aggressiveness. Anxious states are often associated with distressing sensations, especially with dizziness, headache and general weakness, more rarely with pronounced hypochondria. If these affective disturbances appear in the initial stages, they may persist during the further course of the disease, but they rarely develop *de novo* in the more advanced cases. In the latter stages of sclerosis, the special form resembles more the paralytic delusions of grandeur, expansive ideas are prominent, although paranoid self-esteem and ideas of persecution may occur. These conditions are apt, in the later stages, to go on to dementia and such cases are often mistaken for general paralysis.

ATYPICAL ALCOHOLIC PSYCHOSIS.

After an elaborate study of many atypical cases of alcoholic psychosis, Chotzen[12] comes to the conclusion that we can decide as to the etiology of psychoses only when there are specific features in the symptoms and the course which enable us to differentiate psychoses due to a definite cause from other forms. The chronic paranoiac psychoses due to alcohol often cannot be distinguished from psychoses in nonalcoholic subjects. Chronic alcoholism embraces several distinct etiological factors which may act as a source of the psychosis. Beside intoxication, chronic organic changes, changes in metabolism and especially degeneration of the blood vessels and symptoms of involution are to be considered. The progressive forms of hallucinosis occur in more advanced life. The peculiar terminal conditions which are characterized by an intermittent course are not uniform, but are probably diseases of the degenerate, and arteriosclerosis plays an important part. Other cases develop progressively, following an alcoholic initial stage with peculiar fantastic prejudices and ideas of grandeur. These cases may differ in origin and termination; some go on to simple dementia, others recover. Some resemble certain forms of paranoid dementia, and are probably related to processes of involution and arteriosclerosis. Others assume the form of a pseudoparalysis. The Korsakow symptom complex is not wholly typical, but is often complicated from the outset. The pseudo-paralytic type is often accompanied by focal symptoms in the brain leading to degeneration and hemorrhage. The hemorrhages are probably the expression of an increase of the process which leads to the permanent vascular changes found in chronic cases. These vascular changes may be a cause of mental disturbances similar to the senile arteriosclerotic disturbances. Severe toxic conditions also occur which approximate them to the other forms of toxic diseases, especially to the stuporous forms of the post-infectious psychoses. Between these alcoholic forms and Korsakow's psychoses there are the same relations as there are between them and the conditions of stuporous weakness after infectious conditions. The conditions for the development of psychoses in chronic alcoholism, and especially in polyneuritis, are often analogous to those in the acute and chronic infections, and we may thus find the same acute and chronic toxic and exhaustion psychoses develop on a foundation of chronic alcoholism. On the other hand, Kraepelin describes in the initial stage of the post-infectious, stuporous states the same focal symptoms, and in the cases which do not recover the same disturbances of memory, intelligence and the emotions as we find in alcoholic pseudo-paralysis. These infectious conditions may assume the type of pseudo-paralysis, and may approximate the organic brain diseases. These stuporous conditions may terminate in defective states, or wholly recover. The post-infectious confusional states correspond to the alcoholic in their motor symptoms, and in the chronic psychosis which develops from severe delirium it is often difficult in the chronic stage to differentiate it from katatonia. In the acute alcoholic hallucinosis symptoms of motor irritation and mild stupor occur. Korsakow's psychosis has a characteristic paranoid terminal state. Beside the defect symptoms there may be a single prejudice. In degenerates with alcoholic disturbances of consciousness there may be fantastic ideas of grandeur. They usually show no euphoria, as in general paralysis, but are either irritated and exalted, or dreamily depressed. The ideas of grandeur may be isolated, the amnesia is usually not complete. Symptoms of chronic alcoholism may also be associated with those of mania. The type of alcoholic pseudo-paralysis rises first from the association of arteriosclerosis with alcoholic psychosis; second, if the pseudo-tabes or the cerebral focal symptoms are associated with the typical Korsakow psychosis or with different forms which resemble the post-infectious psychosis of organic brain diseases. In this group are also included the slowly progressive cases which gradually terminate in weakness of memory and stuporous dementia after attacks of delirium or alcoholic epilepsy. Thirdly, pseudo-paralysis may develop from the association of cerebral alcoholic focal symptoms with a delusion of grandeur in a degenerate coming on with alcoholic disturbances of consciousness and also in association with mania.

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[11] *Ibid.*, 482, March, 1906.

[12] *Ibid.*, 383, March, 1906.

THE PSYCHOSES OF HEART DISEASE.

House [13] calls attention to the mental disturbances associated with cardiac disease, which, he thinks, have been rather neglected by authors of textbooks, the heart disease being regarded either as a complication of the insanity, or the organic symptoms predominating, they either overshadow the slight mental ones or so disable the patient that he can be easily cared for in the wards of a general hospital where psychic derangements are considered as only secondary and subordinate to his bodily ailment. In the severer cases this may do harm, but in the slighter ones it is bad, as the mental disorder which should be attended to is likely to be overlooked. He recognizes four principal types, more or less shading into each other, as follows:

1. Panicky conditions alternating with some depression and irritability, without active delusions or hallucinations. In such cases the patient is usually terrified by the consciousness of cardiac sensation and irregularities.
2. Delusive symptoms based on misinterpretations of local cardiac phenomena, such as pain.
3. Active hallucinations and delusions from circulatory disturbances involving sensory organs.
4. Dementias from secondary lesions of the brain. Case histories, illustrating the different types and the relation of the heart lesions to the mental symptoms, are given. It is not contended that the heart disease was the sole cause in every case, but rather that it was the exciting cause, except wherein the cardiac troubles are rather the effect, and special emphasis is given to the relationship of mental improvement to the treatment directed to the heart trouble. During a residence of nearly two years in a large state hospital, the author observed but few of these cardio-mental cases, and the inference is, that they are more often treated by the internist than by the alienist, and their psychic side has thus been minimized.

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Reports of Societies.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Proceedings of the Sixteenth Annual Meeting, Held at Salt Lake City, Utah, Aug. 30, 31 and Sept. 1, 1906, with the President, Dr. M. L. Harris, of Chicago, in the Chair.

(Concluded from No. 21, p. 620.)

THE SURGICAL TREATMENT OF SPLANCHNOPTOSIS.

Dr. B. B. Davis, of Omaha, Neb., presented a brief statement of the anatomical changes found, and described the various surgical procedures which have been proposed and carried out for the relief of this condition. He gave a résumé of his own operations. He considered the relative merits of the several operations done, and of the value of surgery in extreme cases.

LATE PHLEBITIS FOLLOWING CLEAN ABDOMINAL OPERATIONS.

Dr. W. W. Grant, of Denver, presented that form of phlebitis culminating in the veins of the legs and which was known to occur most frequently about two weeks after simple, aseptic abdominal operations, without being preceded by faster pulse, elevation of temperature, pain or any indication at present known of its advent. In the great majority of cases it culminated in the vessels of the left leg, no matter where the incision was made.

He quoted at length from the literature, and showed that the etiology of this condition was still very hazy. His belief was that the cause of phlebitis of the epigastric, iliac, femoral, saphenous and tibial vessels, occurring late after a perfectly aseptic operation, and clean, prompt healing of the wound, was probably not septic with our present knowledge of pathogenic bacteria and their actions. The specific cause or causes were unknown. The cases, of which a good illustration was reported, were very difficult of satisfactory explanation. In the absence of convincing or pathological evidence, and in the face of profound surgical skepticism, it was not rational in the best and cleanest days known to surgery to assume infection that was devoid of satisfactory evidence. The condition which caused thrombosis before an inflammation, or the phlebitis preceding a thrombus, was the vital question. It was exceedingly difficult, in fact quite impossible, to reconcile the facts with the recumbent position, the simple ligature, or injury to small veins, in a distant field on the opposite side of the body, although admitting that infection might not come from the site of operation. The author believed there was a general condition affecting the composition of the blood that might be caused before operation, which was an essential factor in the cause of thrombophlebitis in these cases. A careful scrutiny of patients should be made before operation, and an examination of the blood made before and after operation. If the patient was chlorotic and anemic, or the conditions not satisfactory, the health should be improved, if delay was permissible, by the administration of iron and acids, and metabolism improved by a suitable food supply, while specific or constitutional affections should receive just consideration.

Dr. A. C. Stokes, of Omaha, said there was referred to him an anemic, pale woman, fifty-six years of age, in whom beginning carcinoma of the rectum was suspected. She was given an anesthetic for the purpose of examination. A speculum was introduced well up into the rectum, without producing any great amount of traumatism to the mucous membrane. After this the patient was returned to bed and kept there on account of her anemic condition. Four days later she developed phlebitis. He was unable to say whether the phlebitis was due to the traumatism of the rectum, or to the anesthetic. He thought it was the anesthesia which produced a general toxemia in some cases, and this might produce in turn a chemical change in the blood, which at times might produce in connection with rest in bed venous stasis, etc. He was inclined to believe that the great majority of these cases were septic, and whenever he saw a case of phlebitis he always searched for a focus of infection.

Dr. Harry M. Sherman, of San Francisco, cited one case of phlebitis of the left femoral vein, and mentioned two others occurring in the practice of other surgeons, all three operations having been done by different men, and each operation being different.

Dr. Leonard Freeman, of Denver, pointed out that femoral phlebitis occurred in connection with appendicitis even when no operation was done. He had seen a double femoral phlebitis result in a case of appendicitis within a few days, with the patient not lying in bed. Phlebitis occurred in connection with other things where there was no question about septic infection. For instance, in an ordinary Pott's fracture of the right leg, and in one case of simple fracture, left femoral phlebitis resulted in the course of a week or two. In another case of fracture of the left patella a right femoral phlebitis developed, and a left phlebitis afterward. These could not be explained by infection.

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[13] Jour. Am. Med. Asso., Oct. 28, 1906, and Jour. Nerv. and Ment. Dis., p. 551, no. 8, vol. xxxiii, 1906.

Dr. E. S. Wright, of Salt Lake City, recalled his first case of phlebitis following an operation for appendicitis. The appendix had ruptured, and had filled the pelvis with pus. He drained through the cul-de-sac, and the vagina had become partially obliterated. Possibly the traumatism incident to the introduction of the speculum in this case contributed to the result. The patient recovered from the phlebitis without any particular treatment.

Dr. J. Clark Stewart, of Minneapolis, Minn., said the general impression among pathologists was that thrombosis was in many instances of bacterial origin. The term sepsis was the *bête noire* of the surgeon, and naturally surgeons refused to accept sepsis as a cause of anything in connection with what they were doing. If the term bacteriemia were used, they would be perhaps more willing to accept it. It would seem that many cases, if not all, of thrombosis were due to bacteriemia. Pus bacteria entered the blood from sources unknown, and gave rise to such diseases as osteomyelitis. We knew nothing of the way the various bacteria got into the blood but we knew in a great many cases there was a distinct bacteriemia. There was only one way to do, and that was to have blood cultures made of the cases that have femoral thrombosis, and see whether or not they have bacteria in the blood. Bacteria in the blood did not necessarily mean sepsis in a surgical sense, as a patient might have a certain number of bacteria circulating in the blood without clinical manifestations. It was only when some point of least resistance occurred that the lesions were localized.

Dr. Andrew C. Smith, of Portland, Ore., recalled three cases of phlebitis from three different types of operations in his own work. None of them was immediately septic, but each of them was remotely septic. He attributed each case to the catgut, and thought the slight sepsis was due to late disintegration of the chromic catgut, and the absorption of toxins from that.

Dr. Union Worthington, of Salt Lake City, did not believe that trauma was a cause of phlebitis. Whenever he had a case of phlebitis it was his practice to look for infection just as it had been his practice to look for a focus of pus when he saw a case of rheumatism. The fact that phlebitis more frequently occurred in the left leg than in the right had never been satisfactorily explained to him.

Dr. Grant, in closing, expressed the belief that blood examinations by bacteriologists and pathologists would have to settle the question. Pathologists had not been given a good chance thus far because most of the patients recovered; but the rather dogmatic statement of Murphy that recumbency was the cause could not be accepted. It might be one of several causal factors.

THE PRINCIPLES AND MECHANICS OF ABDOMINAL DRAINAGE.

Dr. R. C. Coffey, of Portland, Ore., read a paper on this subject, in which he presented the following deductions: "1. Fluids are rapidly absorbed by the peritoneal cavity; crude or granular matter only through lymph spaces at the diaphragm. 2. A drainage tract always contains micro-organisms. 3. Any form of drainage is isolated from the free peritoneal cavity in six hours. 4. A drain causes a flow of serum by irritation which is profuse in proportion to the amount of drain within the peritoneal cavity. 5. This flow is delivered to the surface only in proportion to the amount of drainage passing out through the wound. 6. Serum and pus accumulate around drainage only when the drainage at the outlet is less than that contained inside, or is not sufficiently extensive to deliver the fluid before it is filled with débris and granulations. 7. Blood and pus are never found in the neighborhood of a properly applied drain after forty-eight hours. 8. The flow of serum dissolves blood clots and thick pus, leaving the gauze clean and white by the time it ceases. 9. The flow of serum does not occur to any extent in formed abscess cavities; therefore, blood and pus are not well drained from them by capillary drainage. 10. A tube will drain a walled cavity and will drain the peritoneal cavity under the influence of gravity, but not otherwise. 11. A single tube is much more likely to be choked by intestines and omentum than two or more parallel tubes. 12. Gauze drains in proportion to the amount coming through the opening, and will only drain when it is in contact with dressings or clothing, or when its outside end is at a lower level than the cavity to be drained. 13. Small gauze drains are likely to be choked at the exit, unless covered by a tube or protective. 14. There are three cavities of the peritoneum to be drained, the right and left flank separated from each other by the spinal column, and the pelvis separated from the flanks by the psoas muscles. Either flank holds more fluid, and is an inch deeper than the pelvis, and its bottom is more than four inches below the top of the divide made by the psoas muscle on which the appendix rests. The body must be elevated to an angle of 51° to bring the bottom of the flank on a level with the divide, and 60° or 70° to properly drain by the Fowler position. The entire cavity can be drained by gravity by a lateral position. 15. Drainage should always be in contact with the parietal peritoneum on one side. A line drawn from the center of the perineum to the tip of the shoulder passes through the pelvis and deepest part of the flank, and on the right side through the appendix. These diagonal lines we call the right and left drainage lines. Drainage should always be placed external to these lines or just above the pubic bone. 16. If only one of the three cavities is infected, it alone should be drained."

CONCLUSIONS.

"Drainage must be extensive enough to do its work in less than six hours, and should reach the bottom of every infected cavity, either by gravity or drains. It should not be removed until it is loosened, which varies from six to fourteen days. Given the principles and mechanics of drainage, and a competent surgeon is able to fit his method to the case. Peritoneal drainage intelligently used is one of the most effective life-saving agents at our disposal."

INTESTINAL SUTURE.

Dr. A. F. Jonas, of Omaha, described and demonstrated an aid in intestinal suture.

COMPLICATIONS, ACCIDENTS AND SEQUELÆ INCIDENT TO PROSTATECTOMY.

Dr. J. N. Warren, of Sioux City, Ia., spoke of the condition of the gland influencing operation, and also of the presence of active or chronic infection. He referred to the condition of the bladder as to contraction or dilation as a complication; also the presence of vesical calculi, accidents, hemorrhage, puncture of bladder, recto-vesical fistula, rectal fistula and methods of management, sequelæ, incontinence or retention necessitating resumption of catheter, impotence, etc.

Dr. George Goodfellow, of San Francisco, said that up the present time he had made 105 operations for the removal of prostates, with 2 deaths. He gave a lengthy explanation of the cause of this low mortality.

Dr. W. W. Grant asked as to the proportion of cases suffering from incontinence.

Dr. Goodfellow replied that he had had no case of total incontinence. He had had up to the present time four cases of partial incontinence, where the patient was able to retain four to six ounces of urine for a short time. The cases of total incontinence usually never lasted over four months. In one case a fistula lasted eleven months.

Dr. Charles H. Mayo, of Rochester, Minn., said that prostatectomy was not a minor operation. It had a fixed mortality that any type of serious operation would involve. He believed that the mortality from this operation was about 6%. Dr. Goodfellow, an expert in this line of work, had a better mortality rate than most surgeons.

MASSAGE OF THE HEART IN APPARENT DEATH FROM ANESTHETICS.

Dr. D. S. Fairchild, of Des Moines, Ia., reported a case of massage of the heart in apparent death from anesthesia, and reviewed the literature of twenty-four other reported cases. He spoke of the time after arrest of the heart when positive results might be expected. He discussed the best route for approaching the heart for the purpose of massage.

THE PERIPHERAL VERSUS INTRACRANIAL OPERATIONS FOR TIC DOULOUREUX.

Dr. Charles H. Mayo, of Rochester, Minn., said that one of the most distressing diseases was facial neuralgia. More methods of internal, external and surgical treatment had been advanced for its cure than for any other condition. In 1896 Dr. Abbé reported a case in which he interposed mechanical obstruction to the reunion of the nerve by placing rubber tissue over the foramina of exit of the nerves in the skull. For nine years Dr. Mayo had employed silver screws to obstruct the infra-orbital foramen after torsion, removal of the nerve by the Thiersch method. For a less period the inferior dental canal had been obstructed with equal success. While not as effectual as the intracranial operation, because of the numerous branches, still the method controlled the two branches most commonly affected. It could be employed on many who would not submit to an intracranial operation, with its attendant mortality and occasional failures to cure.

ANEURYSMAL VARIX.

Dr. J. Clark Stewart, of Minneapolis, read a paper on this subject, in which he reported an interesting case of large aneurysmal varix of the forearm, and exhibited photographs. He presented histories of such cases, and described the operative methods used. He likewise discussed the proper treatment of the lesions in the upper and lower extremities, and considered the radical difference in the conditions present.

SARCOMA OF THE MALE BREAST.

Dr. F. Gregory Connell, of Salida, Colo., reported this case. The patient was twenty-five years of age. The mother had both breasts removed for cancer. There was no history of traumatism. The tumor started in a congenital discoloration of the skin near the right nipple, and in three months had grown to the size of a walnut. The breast and axillary glands were removed. The healing of the wound was perfect. Two months after discharge the patient presented himself for examination, and a keloid was found to have developed in the cicatrix. When last seen, six months later, the keloid was smaller, and there was no evidence of a recurrence of the sarcoma. Histological examination showed the tumor to be a spindle-celled sarcoma.

The author made some remarks upon the frequency of this condition in the male, and reviewed the literature.

MALIGNANT COMPLICATIONS AND DEGENERATIONS OF UTERINE FIBRO-MYOMATA.

Dr. Charles W. Oviatt, of Oshkosh, Wis., in a paper on this subject said the conclusions which were forced upon him by a study of reported cases were: 1. That women suffering from fibroid disease of the uterus incur a greater risk in allowing it to remain than in having it removed by a competent surgeon. 2. The fact that adenocarcinoma of the body of the uterus occurs much more frequently in cases of fibroid tumor than does cancer of the cervix leads him to believe that there must be a direct causative relation between fibroid tumors and cancer of the body of the uterus. 3. Every fibroid tumor removed should be subjected to careful laboratory study, no matter what its gross appearance.

TREATMENT OF TUBERCULOSIS OF THE KIDNEY AND BLADDER BY NEPHRECTOMY.

Dr. Leonard Freeman, of Denver, Colo., after detailing fourteen cases upon which he had operated for tuberculosis of the kidney and bladder, drew the following conclusions: " 1. Tuberculosis of the urinary tract very often begins in the kidney, attacking the bladder secondarily. 2. It is usually at first unilateral. 3. Medical or climatic treatment is unsatisfactory in most cases. 4. The ideal treatment is early nephrectomy, providing there is one sound kidney. 5. Tuberculosis eslewhere, unless far advanced, is not a contraindication to operation. 6. Tuberculosis of the bladder derived from one kidney is positively benefited by nephrectomy, and can seldom be cured without it. 7. The demonstration of tubercle bacilli in the urine often fails. 8. The removal of the ureter is not ordinarily indicated. If sinuses result, they nearly always heal with time."

INJURIES OF THE URETER.

Dr. A. H. Kerr, of Salt Lake City, read a paper on this subject, in which he reported a case of ureteral cystostomy or uretero-vesical implantation.

OPERATIVE PROCEDURES FOR CHRONIC URETHRITIS.

Dr. A. C. Stokes, of Omaha, Neb., discussed the incurable gonorrheas in the male. He gave the reasons why this disease is so often not cured. He spoke of the havoc of gonorrhea in civilization. A minute anatomical and pathological diagnosis must be aimed at, and having once arrived at a definite diagnosis as to the position of the infection, we should resort to the methods that are most applicable to its treatment. He spoke of external urethrotomy in its relation to chronic gonorrhea, and of operating for vesiculitis, prostatitis and old infections of the vas deferens. He reported four cases where chronic gleet was treated by external urethrotomy and cauterization of the prostatic follicles and urethra. He discussed vasotomy in the treatment of infections of the seminal vesicles and epididymis. He described the technique of the latter procedure and reported five cases on which he had operated.

Papers were read also by the following gentlemen: "The Control or Elimination of Pneumothorax during Operations on the Chest, with Lantern Slides," by Dr. Dudley Tait, of San Francisco, Cal.; "Abdominal Contusions," by Dr. Wm. Jepson, of Sioux City, Ia.; "A Point in the Technique of Ligating the Appendix in Appendectomy," by Dr. Jabez N. Jackson, of Kansas City, Mo.

OFFICERS.

The following officers were elected for the ensuing year: President, Dr. Chas. W. Oviatt, of Oshkosh, Wis.; first vice-president, Dr. S. C. Baldwin, of Salt Lake City, Utah; second vice-president, Dr. Jabez N. Jackson, of Kansas City, Mo.; secretary-treasurer, Dr. Arthur T. Mann, of Minneapolis, Minn.

St. Louis, Mo., was selected as the place for holding the next annual meeting; time, latter part of December, 1907.

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Book Reviews.

Eating to Live, with Some Advice to the Gouty, the Rheumatic and the Diabetic. A Book for Everybody. By John Janvier Black, M.D. Pp. 412. Philadelphia and London: J. B. Lippincott Company. 1906.

Recognizing the dangers and pitfalls in the habits of civilized man regarding diet, Dr. Black has written a book giving in somewhat popular form and yet with much detail a theory of dietetics, together with many facts of interest not only to the dyspeptic but also to the well. He asserts that he will be more than satisfied if his readers are saved from some of the dangers which come to those who eat and drink from instinct rather than from reason. It is evident that warnings on this score can hardly be too frequently given. We trust that Dr. Black's book will serve its purpose.

The Diseases of Women. A Handbook for Students and Practitioners. By J. Bland-Sutton, F.R.C.S. Eng., Surgeon to the Middlesex Hospital, and Senior Surgeon to the Chelsea Hospital for Women, and Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S. Edin., Surgeon to the Chelsea Hospital for Women and Gynecologist to the Tottenham Hospital. Fifth edition with 129 illustrations. London and New York: Rebman Company. 1906.

This is indeed a handbook, being of convenient size to hold in the hand, although there are 536 pages. The printing, paper, binding and the illustrations are all excellent.

The portions of the book which treat of the diseases of the ovaries and tubes follow closely Bland-Sutton's "Surgical Diseases of the Ovaries and Fallopian Tubes." These are, in this edition, well written chapters on extra-uterine gestation and chorion-epithelioma, embodying the recent knowledge of these subjects.

The operative procedures are somewhat scantily treated, more especially the plastic operations and the aseptic technique. There is very little unessential matter in the book, and it justifies the statement in the preface, to wit: "We still believe that when surgical authors are able to restrain their vanity, and refrain from publishing notes of successful cases in textbooks, the established facts of the art can be presented in a very convenient compass."

Conferences on the Moral Philosophy of Medicine. Prepared by an American Physician. Pp. 368. London: Rebman, Limited. New York: Rebman Company. 1906.

This anonymous volume is concerned with a series of reflections on the duty of the physician to himself and to the world from the early days of his practice to its end. Naturally, many of the statements made are self-evident, but we have no doubt that certain persons will find its injunctions useful in the conduct of their professional lives.

A Cook Book for Nurses. By Sarah C. Hill, Instructor in Cooking, Michael Reese Hospital. Pp. 72. Boston: Whitcomb & Barrows. 1906.

The writer of this small volume of seventy-two pages prefaces her book by an apology in offering another treatise on the subject of cooking for nurses. The excuse is that the receipts here found are in more condensed form than in other books of a similar sort. This seems to be a fact. Receipts are given clearly and with sufficient headings to make reference easy. The book makes no pretensions and will, no doubt, prove acceptable.

Massage and the Original Swedish Movements. Their Application to Various Diseases of the Body. By Kurre W. Ostrom. Sixth edition, revised and enlarged. Illustrated. Pp. 184. Philadelphia: P. Blakiston's Son & Co. 1905.

Practical Massage in Twenty Lessons. By Hartvig Nissen, Instructor and Lecturer in Massage and Gymnastics at Harvard University Summer School; Director of Physical Training, Brookline Public Schools. Illustrated. Pp. 168. Philadelphia: F. A. Davis Company. 1905.

This is the sixth edition of Ostrom's concise treatise on massage and Swedish movements. It remains a useful elementary book. The illustrations are somewhat crude but sufficiently explanatory.

Nissen offers to the public a small book of one hundred and sixty-eight pages on practical massage. It has been written after thirty years of practice, both as a masseur and a teacher, and gives an excellent general account of the manipulations useful in massage and what goes under that name.

Either of these books should be useful to those desiring a simple statement of the best methods of massage and allied methods of treatment.

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MORPHOLOGY IN THE STUDY OF PATHOGENIC PROTOZOA.

At the November meeting of the Medical Association of the Greater City of New York, Prof. Gary N. Calkins, of the Department of Zoölogy, Columbia University, read a paper on "Morphology, a Necessary Factor in the Study of Pathogenic Protozoa." He said that this title had been chosen because it seemed to him that there was a growing tendency to drag protozoa research into the somewhat narrow lines of bacteriological technique, and so to limit the normal development of that knowledge. In the determination of an organism the old-time condition, "it must move," appeared to have given place to the more modern one, "it must be cultivated," and in the effort to do this, with the usual outcome of failure, there was some danger that this important field of medical science might be neglected. It is a great achievement, he went on to say, to have succeeded in cultivating a protozoön on artificial media, and Novy and his collaborators are to be congratulated on their results with the flagellate Trypanosoma. Perhaps sometime some of the intracellular parasites can be similarly cultivated; though it is not necessary to wait for this time before studying them. Despite the brilliant results which Novy has obtained in proving by the cultural method that Trypanosoma is an organism, there has been little of importance added to our knowledge of the life-history of this organism by this particular method of study. On the other hand, a vast bulk of knowledge has been accumulated — form after form having been studied and identified and life-histories having been made out, confirmed and established — on the old-time basis of protozoön research, morphology. In the more or less complicated form-changes which the protozoön passes through in its life-history we have an essential difference from the more stable bacteria type of structure, and morphology has an importance quite apart from the particular structure of any cell at any one time.

The method to be adopted in studying protozoa, whether pathogenic or not, is that which takes into consideration the multiple form-changes of the organism in its normal habitat. Thanks to the abundance of data now accumulated, we have certain well-defined morphological criteria which lessen the difficulties in this method of research, and the practised eye can usually tell the difference between a protozoön and a degeneration product or secretion, etc. Professor Calkins showed on the screen a diagram representing the variations in vitality of a free-living protozoön, paramecium caudatum. A single one was isolated in its normal culture habitat, hay infusion, and put into a moist chamber. By the next day it had divided twice, and these four organisms were similarly isolated, four lines of paramecium protoplasm being thus started. On the following day each of these four had divided, and one from each was similarly selected and isolated as before. In this way the successive generations were followed continuously for a period of twenty-three months, or until the protoplasm died out from unmistakable protoplasmic old age, in the 742d generation. This long period of generations did not represent the normal life-cycle of paramecium; but, owing to the use of artificial stimulants, the vitality was renewed three times, and the 742 generations thus represented four complete life-cycles. In any one of these cycles there could be traced, by certain peculiarities characteristic of each, three well-marked periods of vitality, and these three periods in the life-cycle of a protozoön simulated the periods of growth, adolescence and old age in higher animals. He considered, therefore, that he was justified in the demand which he had recently made, that the entire cycle, and not the single cell, should be made the basis of species and genera, and that the whole congeries of cells, and not the single one, should be regarded as the individual organism.

All protozoa pass through such cycles of vitality, and in all the most important period is that in which the organisms change in physical and chemical make-up preparatory to the sexual union by which vitality is restored. These changes are visible as morphological alterations, and are so characteristic that they cannot be misconstrued. Sometimes they are shown by changes in size and form, so that in the group of protozoa we have a complete series of forms in which the size varies from the ordinary cells to cells which are completely differentiated sexually. In cercomonas, for example, the protoplasm at this period becomes highly plastic, the usual contour of the body is lost, and the organisms are highly miscible. In other forms of protozoa, as for example those which are ordinarily ameboid, one can recognize the same period in the life-history by characteristic nuclear changes. The latter are of one pattern throughout the entire group of sarcodina, and thus this characteristic is recognized as a normal feature of the middle phase in the life-cycle of a large number of widely separated types of rhizopods. A good illustration of chromidium formation by nuclear fragmentation is found in Ameba proteus. Similar fragmentation is characteristic of the foraminifera and radiolaria. Another type of chromidium formation, however, is found in some of the shelled rhizopods, like diffugia, centropyxis, and arcella, and in general in the fresh water shelled forms. This second method or chromidium formation is by the transfusion of chromatin substance through the wall of the nucleus, and secondary accumulation in the cytoplasm as distributed chromatin granules. During the period of adolescence of such rhizopods this accumulation goes on to such an extent that the cytoplasm is practically filled with the particles. As in other forms, such distributed chromatin is the forerunner of the formation of sexual gametes, and indicates the period of sexual maturity.

Now, turning to the pathogenic forms, it is the chromidium formation which enables us to distinguish protozoa from various intracellular structures in diseased tissues, such as degeneration products, secretions, blood elements and the like, although in some instances the entire life-cycle is necessary to afford convincing evidence. It is a characteristic which distinguishes protozoa from bacteria and from the various cellular structures in metazoa, and it is a morphological feature *par excellence* by which pathogenic protozoa may be recognized. Moreover, this function is the most important activity of the life-cycle, since it involves sexual reproduction and continuance of the species. Both the negri body, found in rabies, and the organism of small-pox are characterized by distributed chromatin which is formed as in centropyxis, arcella, etc., and it is probable that both organisms belong to the rhizopod type of protozoa.

In the discussion of Professor Calkins' paper, Dr. James Ewing, Professor of Pathology in Cornell University, stated that he differed on some points from the speaker, though he did not think it would be profitable to discuss these differences on this occasion. At the same time, it was with the greatest pleasure that he acknowledged the importance of eliciting the labors of the zoölogist in pathological research, and it seemed to him a matter of encouragement and congratulation that all over the world men engaged in related fields of work were now collaborating with the medical profession in this department of science.

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MEETING OF THE NATIONAL ACADEMY.

The National Academy of Sciences has held a meeting of exceptional interest and importance at the new Harvard Medical School. The three days, November 20, 21 and 22, were fully occupied by a long program of papers and exhibits due to the successful activity of the local committee. Owing to the system of concentration in studies, the physiological laboratory is not in use this term, and was therefore able to offer its lecture hall and rooms for the use of the Academy without disturbing the regular work of the school, and with the advantage of not subjecting the members of the Academy to the noise and confusion of students moving about. The business meeting of the Academy, which is always closed to the public, was held in the Faculty room, which has now been handsomely furnished. The members of the Academy all expressed themselves as extremely pleased with the arrangements for the meeting, and with the great convenience of the new Medical School buildings which furnished such satisfactory accommodations.

This is the first time that any visiting body has held a scientific meeting in the new buildings of the Harvard Medical School. The success of this experiment proves that the buildings are exceptionally adapted to this use and they are likely to long remain an important attraction for just such uses. It seems probable that they will frequently serve in this way for the promotion of scientific work by facilitating meetings of visiting societies; and this function, in addition to the primary use of the buildings, is likely to prove of lasting advantage to the community.

On the first afternoon a *conversazione*, or exhibit of specimens, apparatus, etc., which had been organized by Prof. W. M. Davis and Dr. W. T. Councilman, was held in the upper floor of the Pathological Laboratory. The display proved to be of the greatest interest, and much admiration was expressed by both the members of the Academy and the numerous invited guests, of the superb lighting of these rooms, which proved most admirable for the apparatus at the *conversazione*.

Dr. C. S. Minot showed the evolution of the microtome and the Harvard embryological methods; Dr. Ernst demonstrated ultra-violet photomicography; Dr. J. H. Wright, origin of the blood plates; Dr. F. B. Mallory, methods of staining; Dr. E. E. Southard, nerve tissues; Dr. S. B. Wolbach, pathogenic fungi; Dr. W. T. Porter, improved kymographions; Dr. E. E. Tyzzer, photomicrographs of dermatitis produced by the brown-tail moth; Dr. W. B. Cannon, movements of the intestine, — making altogether a series of medical displays of very considerable interest, and supplementing worthily the astronomical, zoölogical, botanical and other exhibits coming from outside.

The list of papers, which was a long one comprising forty-three communications, included several of medical interest. We think that this meeting of the Academy at the Harvard Medical School is likely to have a permanent influence, not only in stimulating the Academy in regard to future meetings, because on this occasion the program was fuller, more varied and interesting than at any previous meeting, but in the recognition, fairly earned, given to medical research.

After all, one of the chief results which the medical profession must at present stand for is the full recognition of medical research as on a par with research in any other department of science. The recent meeting of the National Academy of Sciences is, we think, likely to exert a far-reaching and long-continued influence in favoring medical science and in maintaining the reputation of Boston as a desirable place for national scientific societies to meet. It is certainly true, as we have often found occasion to remark, that the city combines many attributes which make it a satisfactory meeting place. It is somewhat out of the line of usual travel, as other large cities of the east are not, and offers much of general educational and historical interest.

FIRST REPORT OF THE ASSOCIATED COMMITTEES OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE PREVENTION AND CONTROL OF TUBERCULOSIS.

When president of the Massachusetts Medical Society, Dr. Arthur T. Cabot interested himself in having committees appointed by the district branches of the state society to the end that they might co-operate for the control of tuberculosis throughout the state. Such committees were appointed, and met for organization on June 12 last. Dr. Cabot was chosen chairman and Dr, T. F. Harrington, of Lowell, secretary, and it was voted that each district committee should make a report to the secretary, giving in detail the conditions existing in their respective districts, and that such report be edited and published for distribution among the members of all the committees throughout the state.

We commented editorially on this action in the issue of the Journal for June 21, expressing the hope that a clear and comprehensive view of conditions prevailing throughout the state might be presented, and the opinion that such a report would be invaluable as well as authoritative in directing the energies of individuals or societies undertaking this line of work. We are still under the impression that no other state is organized along these lines.

The first report of the associated committees is now before us. Eighteen districts appointed committees; of these, three — the Essex North, the Franklin and the Plymouth — make no reports. The reports from the other districts are more or less full. The most thorough and instructive are those from the Middlesex North district, which includes Lowell, a manufacturing city of mixed population, and the Suffolk district, which is Boston. The briefest reports are from the Middlesex East district and the Norfolk South district.

These reports show that in several districts of the state anti-tuberculosis societies among the laity have been of the greatest assistance; these should be encouraged in all towns, large and small, and to get their efficient service they should be under some sort of co-operative medical supervision.

An examination of the reports indicates to Drs. Cabot and Harrington that in organizing further work the first efforts should be to procure systematic registration of cases. If the local board of health declares tuberculosis an infectious disease, dangerous to public health, the law of the state requires its registration. Registration should not necessarily bring publicity or entail hardship upon either patient or physician, but, on the other hand, it should bring important advantages direct and indirect to the patient and friends as well as to the community. A corollary to registration is disinfection of premises.

For the present, united action is advocated on four objects of primary importance, namely, registration, disinfection, anti-tuberculosis associations, hospitals for advanced cases. Other suggestions, though valuable and practical, can receive later consideration.

Another report by these committees will be issued a year hence, and it is expected as these reports become more and more thorough that they may serve as a basis for obtaining such further legislation as may be needed.

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MEDICAL NOTES.

A Giant Farmer. — Haakon Bjoinstern, a Norwegian giant, upwards of seven feet six inches in height, has recently arrived in Boston from his native country, and will go west to undertake farming. A daily paper characterizes him as "a veritable Viking in appearance."

Mississippi Valley Medical Association. — The annual meeting of the Mississippi Valley Medical Association was held at Hot Springs, Ark., Nov. 6, 7 and 8, 1906. The following officers were elected: President, H. Horace Grant, M.D., Louisville, Ky.; first vice-president, G. A. Herbert, M.D., Hot Springs, Ark.; second vice-president, T. C. Witherspoon, M.D., St. Louis, Mo.; secretary, Henry Enos Tuley, M.D., re-elected, Louisville, Ky.; treasurer, S. C. Stanton, M.D., re-elected, Chicago, Ill. Columbus, Ohio, was selected as the next place of meeting, during October, 1907.

It was voted at this meeting to offer a prize of $100 to members of the association for the best essay recording some original research work in the Mississippi Valley. A committee of three was appointed who will formulate rules of the contest, which will be published later.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Nov. 21, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 51, scarlatina 19, typhoid fever 17, measles 11, tuberculosis 24, smallpox 0.

The death-rate of the reported deaths for the week ending Nov. 21, 1906, was 17.06.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Nov. 24, 1906, was 190, against 215 the corresponding week of last year, showing a decrease of 25 deaths and making the death-rate for the week 16.45. Of this number 101 were males and 89 were females; 184 were white and 6 colored; 112 were born in the United States, 77 in foreign countries and 1 unknown; 40 were of American parentage, 133 of foreign parentage and 17 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 58 cases and 2 deaths; scarlatina, 27 cases and 0 deaths; typhoid fever, 16 cases and 3 deaths; measles, 10 cases and 0 deaths; tuberculosis, 34 cases and 15 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 28, whooping cough 1, heart disease 18, bronchitis 5 and marasmus 4. There were 7 deaths from violent causes. The number of children who died under one year was 36; the number under five years 50. The number of persons who died over sixty years of age was 53. The deaths in public institutions were 67.

Bequest for Hospital in Wakefield, Mass. — By the will of the late John G. Aborn land in Wakefield is left for the purpose of building thereon a home for aged men, and also on three quarters of the property a hospital for the town.

Appointment of a Dermatologist to the Boston Board of Health. — The new office of dermatologist to the Boston Board of Health has been created, and Dr. Francis J. Keany has been appointed to fill the position. It is expected that Dr. Keany will give assistance in the inspection of school children in addition to whatever other duties may pertain to the office. Dr. Keany is dermatologist to the City Hospital and also to the Carney Hospital. This new office is said to carry a salary of $4,000.

Bequests to Hospitals. — By the will of the late Charles Merriam, the following institutions receive bequests: Massachusetts General Hospital for free beds and the Massachusetts Charitable Eye and Ear Infirmary, $5,000 each; the Children's Hospital, $2,500; Thomas Morgan Rotch, Jr., Hospital for Infants, Home for Incurables, Children's Island Sanatorium, Perkins Institution for the Blind, Industrial School for Crippled and Deformed Children, Sunnyside Day Nursery, Convalescent Home for the Children's Hospital, Boston Lying-In Hospital, Free Hospital for Women, Sharon Sanatorium, $1,000 each.

HOSPITAL CAR FOR THE BOSTON & MAINE RAILROAD. — The Boston & Maine Railroad has added to its equipment a hospital car which has recently been under inspection at the North Station. A car has previously been used on this road for hospital purposes, but this is the first to be primarily constructed for this end. The body of the car is mounted on special springs to provide ease in riding and the sick room is arranged in the center of the car with the necessary rooms and accessories immmediately adjoining. In another portion of the car are a number of parlor car chairs and provisions for extra berths. Such a car as this should certainly often be called into requisition.

THE MEDICAL BATHS. — The medical baths, instituted some years ago under the direction of certain physicians of the city, have become self-supporting and have won the confidence of the medical community.

Beginning Nov. 1, 1906, a monthly detailed report of each case will be sent to the physician who refers the patient to the medical baths for treatment. They will be sent oftener if requested. The report will be a copy of the operator's record. From the day the establishment was opened it has been required that the operators should record at the time of each treatment: (1) the weight of the patient; (2) the pulse rate before, during, and after every general heating procedure; (3) the character, duration, and temperature of each thermotherapeutic and hydrotherapeutic measure; (4) the pressure of the douches; (5) the reaction of the patient to cool and cold treatments; (6) the amount of rest taken before and after treatments; (7) the systolic blood pressure before and after each carbon dioxide bath.

It is by this means hoped that certain confusion which has arisen in the past may be avoided.

THE CHANNING HOME. — The Channing Home, beginning as the personal work of mercy of Harriet Ryan (Mrs. Albee), completes its fiftieth year in 1907. In its early days it consisted of an unoccupied vestry room on Channing Street in which were lodged a few incurables, but little by little it has grown. It now has sixteen beds, and about 80% of the patients have been consumptives.

The present location in McLean Street has become unsuitable for the care of such patients. Neighboring buildings have been built to such a height as to reduce the daily sunshine to a few hours. There are no facilities for giving the patients a proper amount of fresh air, which is now recognized as indispensable. The surroundings have become crowded and noisy. The Directors have in view a new and better site, where it is proposed to erect a larger building, easily accessible, near to hospitals, but surrounded by open ground. Contributions are desired.

NEW YORK.

LECTURE ON EPILEPSY. — By invitation of Dr. M. Allen Starr, Professor of Neurology, in the College of Physicians and Surgeons, Dr. Spratling, superintendent of the Craig Colony, recently gave before the students of the college a lecture on epilepsy which was illustrated with living pictures of epileptic seizures.

POLLUTION OF WATERS OF NEW YORK. — Edward Hatch, Jr., recently appointed chairman of the Committee on Pollution of Waters of New York, by the Merchants' Association, has announced his selection of the other numbers of the committee as follows: J. Pierpont Morgan, John Y. Culyer, Dr. Albert Vander Veer, of Albany, and George C. Whipple, the well-known sanitary expert.

BEQUESTS. — On the first anniversary of the death of Lyman G. Bloomingdale, of New York, his sons, acting as executors of his estate and in accordance with the expressed wishes of the deceased, made charitable gifts to the amount of $100,000. Of this sum, $5,000 was presented to the Montefiore Home and Hospital for Chronic Invalids, $25,000 to the sanitarium for consumptives at Bedford, the country branch of this institution, $5,000 to Mount Sinai Hospital, and $1,000 to the Beth Israel Hospital.

HEALTH OF PUBLIC SCHOOL CHILDREN. — A public meeting in the interests of the health of school children was held in the hall of the Board of Education on Nov. 16. A paper on "Medical Inspection of Schools: Its Aims, its Methods, its Results," illustrated with stereopticon views, was read by Dr. John J. Cronin, Assistant Chief Inspector of the Health Department, and an address was made by W. H. Allen, of the Committee on the Physical Welfare of School Children, upon the "Home Needs Disclosed by Medical Inspection." Among those who took part in the discussion were Drs. A. Jacobi and Emil Meyers who commended the work already accomplished and urged its continuation and extension. Controller Metz also made some remarks, in which he said that if the city was going to do a thing of this kind it ought to do it thoroughly, and on a broad and comprehensive scale. He did not think the present appropriation was large enough for the work required, and stated that he had been so impressed with what he had heard at this meeting of the good accomplished by school inspection that he would use all his influence to secure more funds for its further development.

Typhoid Fever. — Typhoid fever is unusually prevalent in Jersey City, and Dr. F. N. Sauer, the head of the bureau of contagious diseases, having become convinced that the trouble is due to contamination of the city's water supply in the Rockaway River, Drs. Lambert and Finnerty of the Health Department and J. W. Griffin of the Water Department are making a special investigation to determine the source of infection.

Dedication of Jewish Hospital. — The annual meeting of the Jewish Hospital Society of Brooklyn was held on Nov. 18, when it was announced that the hospital building now approaching completion, at Closson and St. Mark's avenues, would be dedicated on Dec. 9. The land, building and equipment represent an outlay of some $350,000. Dr. Jacob Fuhs is to be physician-in-chief, and Dr. H. Beeckman Delatour, surgeon-in-chief.

Appropriation for Water Supply. — At the meeting of the Board of Estimates and Apportionment on Nov. 23, an appropriation of $10,000,000 was authorized for the Board of Water Supply. This is to meet a contract for the first section, eleven miles in length, of the new Catskill aqueduct; $600,000 being required for construction, and $400,000 allowed for administration.

Obituary.

WM. K. OTIS, M.D.

At a united meeting of the faculty of the New York School of Clinical Medicine and the trustees of the West Side German Dispensary, held Oct. 31, 1906, the following resolutions were adopted:

That, whereas, on Sept. 22, 1906, through the sudden and untimely decease of our beloved confrère, William K. Otis, A.M., M.D., Professor of Genito-Urinary Surgery, we have sustained a grievous loss; and

Whereas, the Clinical School has lost its most trustworthy secretary and excellent teacher; the dispensary a faithful adherent; the profession a scientific inventor; the public a skilful practitioner; his associates a most estimable colleague; and his intimates a loyal, open-hearted, self-forgetful friend; therefore, be it

Resolved: That we, deploring our loss, share with the bereaved family of William K. Otis their sorrow and grief, and hereby tender our heartfelt sympathy; and be it

Resolved: That copies of these resolutions be spread in full on the minutes, published in the *Medical Journals,* and a copy thereof sent to the afflicted family of the deceased.

A. Ernest Gallant, M.D.,
John L. Adams, M.D.,
William Friedman,
Committee for the Faculty and Trustees.

Current Literature.

The American Journal of the Medical Sciences.
November, 1906.

1 * Bovee, J. W. *The Diagnosis of Renal and Ureteral Calculi.*
2\. * James, W. B. *Environment in Therapeutics.*
3\. * Edsall, D. L. *The Physiological Limitations of Rectal Feeding.*
4\. * Park, W. H., and Throne, B. *Results of the Use of Refined Diphtheria Antitoxin.*
5\. Gibbons, H. W. *The Relation of Hodgkins' Disease to Lymphosarcoma.*
6\. Marks, L. H. *Coagulability of the Blood in Yellow Fever.*
7\. Grinker, J. *Unilateral Paralytic Chorea.*
8\. Schmitt, A. E. *Postural Treatment of Otitis Media and Mastoiditis.*
9\. Solley, John B. *Paralysis of the Facial Nerve Due to the Eustachian Electro-bougie.*
10\. Vale, F. P. *Experimental Experience with Colloidal Silver and a Virulent Streptococcus.*
11\. Pearce, R. M., and Baldauf, L. K. *Vascular Lesions in the Rabbit from Single Injections of Adrenalin.*
12\. * Hirshberg, L. K. *Bacillus Pyogenes Associated with a Febrile Disease.*
13\. * Kelly, A. O. J. *Remote Consequences of Infection of the Biliary Tract.*

1\. Bovee describes three types of cases of renal calculous disease according to symptoms. The first is that in which there occur attacks of intense pain, with vomiting, frequent micturition and later hematuria. The second is characterized by frequent but less severe attacks. The third or chronic type comprises cases in which there is a history of neglected urinary calculus but only vague pains remain, often with symptoms of infection. The principal symptoms of renal or ureteral calculus are *pain, hematuria, urinary changes* and *frequent urination.* In addition there may be a palpable mass, fever, passage of stones or of sand. The pain is of variable intensity, sharp and radiating down the urinary tract or to the thigh or toward the umbilicus. Hematuria of greater or less amount is rarely absent when a calculus becomes restless; pus is present in the urine of a great majority of cases. Rectal and vaginal examination may detect ureteral calculi. Cystoscopy and ureteral exploration with Kelly's bougie are useful. Skiagraphy is constantly becoming more reliable in detection of stones. Careful history and use of these methods of diagnosis should exclude other conditions.

2\. James urges greater attention on the part of the physician to the regulation of the patient's surroundings, a duty too often left to the nurse. He refers especially to the questions of ventilation, temperature and light, the importance of which is emphasized by the results of out-door treatment.

3\. Edsall maintains, from his own experiments and from those of others, that rectal feeding, in the great majority of cases, is merely a modified and partial starvation. Its uses he freely admits, but he holds that it should not be employed without realization that the nourishment provided is wholly insufficient to maintain equilibrium. He shows that we cannot expect the absorption from rectal feeding to amount to more than 200 calories per day, only one sixth of what is required, even by most sick persons, to prevent loss of tissue. Rare cases have been known in which good nutrition has been maintained for considerable periods by rectal feeding alone, but such cases are few.

4. Park and Throne report the results of their use of the soluble globulins of diphtheria antitoxin instead of the whole serum. They find that the antitoxic power is as great and that there is much less tendency to produce rashes, joint complications, fever and other constitutional disturbances. As a result of their work the globulin solution is now the only form of antitoxin supplied by the New York Board of Health.

12. Hirshberg describes a bacillus never before observed, which he obtained by blood-culture from a patient with long continued fever, meningeal symptoms and migratory joint involvements.

13. Kelly analyzes 216 cases of infection of the biliary tract, giving statistics as to presence of gallstones, pains, jaundice, condition of the gall bladder, fever, non-calculous cholecystitis and adhesions. Operation, he says, is indicated in all cases of acute cholecystitis with evidences of severe infection, when the symptoms and local signs seem to be increasing; in most cases, however, it is better to let the acute symptoms subside, as they usually do, without operation. Operation is indicated in all cases of persistently enlarged gall bladder. Two or three attacks of gallstone colic are a positive indication for interference. Impaction of a stone with continued jaundice should be operated on early rather than late. Finally, operation is indicated in cases with digestive symptoms in which pericystic, perigastric or periduodenal adhesions are probably present.

The Journal of the American Medical Association.

Nov. 10, 1906.

1. * Gould, G. M. *Headache and Eyestrain.*
2. * Hammond, P. *Headaches Due to Aural Disease.*
3. * Walton, G. L. *Constitutional Headaches.*
4. * Davenport, T. H. *Chronic Headache with Pelvic Disease.*
5. * Sachs, B. *Injuries to the Child's Head during Labor.*
6. * Boyd, M. *Pregnancy and Labor Complicated by Anterior Fixation of the Uterus.*
7. * Newell, F. S. *Instrumental Dilatation of the Parturient Uterus.*
8. * Edgar, J. C. *Manual and Instrumental Dilatation of the Cervix.*
9. Reyburn, R. *The Medical Treatment of Cases of Cancer.*
10. Skinner, C. E. *Roentgenization in Treatment of Cancer.*
11. Jacobi, A. *Methylthionin Hydrochlorid in Inoperable Cancer.*
12. Kebler, L. F. *Nostrums and Fraudulent Methods of Exploitation.*
13. Taylor, J. M. *Saline Solution in Treatment of Fever.*
14. Mayer, E. *Foreign Bodies in the Bronchi.*
15. * Graham, E. E. *Diagnosis of Tuberculosis in Infants and Children.*

1. Gould maintains that a vast majority of all cases of headache, certainly nine tenths, are due to eyestrain. He deplores the failure of the profession in general to recognize and to emphasize this fact. This he attributes to the imperfection of teaching and practice of the science of refraction, even among oculists.

2. Hammond calls attention to diseases of the ear as a cause of headache. This may occur from the mere presence of cerumen in the canal, from obstruction of the Eustachian tubes or from adhesive processes in the tympanic cavity. The most common cause, however, is chronic suppuration or caries. In these, cessation of the discharge will usually be accompanied by relief from headache.

3. Walton describes a type of headache, usually not severe but constant and resistant to treatment, occurring in patients of neurotic type with stigmata of deviation, for which no adequate reflex cause can be found. These headaches, he explains, are due to the constitutional state of the patient which produces an excessive susceptibility to slight reflex exciting causes of headache, ocular, nasal or pelvic, which in normal persons might be disregarded.

4. Davenport does not regard headache as a common complaint in pelvic disease, occurring but 98 times in 1,000 cases. The commonest cause, and the only one in gynecology which seems to have a direct effect in the production of headache, is disturbance of the menstrual function resulting in irregular or scanty menstruation. In this condition the headache occurs regularly before the flow or sometimes just after its cessation. It is probably the result of vasomotor disorder, and is often relieved or prevented by a wool tampon soaked in glycerin applied as the headache begins, or just before it is expected. Headache in other pelvic disorders he considers to be merely the expression of a neurasthenic condition.

5. Sachs asserts that the world is full of imbeciles, paralytics and epileptics who might have been normal individuals if at the time of their birth they had not been injured by prolonged labor. The danger of injury to the child, he says, is lessened by instrumental delivery.

6. Boyd's paper describes the abnormalities of pregnancy and labor after ventral fixation and suspension. The frequency and gravity of these lead him to the conclusion that it is unwise to perform ventral fixation or suspension before the menopause.

7. Newell says that in certain cases where immediate delivery is indicated, and also in cases of rigid cervix, manual dilatation may be impossible. In such cases careful instrumental dilatation is of service. He describes the dilator devised by him. Although he believes that cases exist in which abdominal or vaginal Cesarean section must be resorted to, he has never seen a case where dilatation by this instrument was not possible.

8. Edgar advocates for rapid delivery *bimanual* dilatation of the cervix, the right middle and forefinger pressing forward toward the emphysis, and two fingers of the left hand pressing backward toward the hollow of the sacrum. For slow dilatation he relies upon the hydrostatic bag.

15. Graham believes that in children chronic throat conditions and chronic intestinal disease prepare the way for entrance of the tubercle bacillus. In infancy and early childhood the lymphatic glands are a particularly important seat of tuberculosis. These may be either acutely attacked or may remain as latent foci of the disease, frequently the starting point for later outbreaks. In practically all moderately advanced cases of tuberculosis in children, however, the lungs are involved. Previous frail condition, poor surroundings, exposure to tuberculosis, tedious convalescence from pneumonia, measles or pertussis, and evidence of lymphatic or bone disease are all points which awaken suspicion. Absence of lung symptoms in the early stages of the illness, with progressive wasting and loss of strength, are suggestive. Where a protracted broncho-pneumonia is present, progressive course and situation in the upper part of the lung favor the likelihood of a tuberculous process. Absence of leukocytosis and negative blood cultures may help to exclude pneumonia, typhoid and other acute diseases. Throat mucus and stools should be examined for tubercle bacilli. In the late stages the diagnosis is usually plain, but in the early stages it is often very obscure.

The Lancet.

Nov. 3, 1906.

1. * White, W. H. *Gastrostaxis or Oozing of Blood from the Mucous Membrane of the Stomach.*
2. Power, D'Arcy. *Acute Duodenal Perforation.*
3. * Russell, R. H. *The Saccular Theory of Hernia and the Radical Operation.*
4. * Lambkin, F. J. *So-Called Virulent Syphilis and its Treatment.*
5. Carpenter, G. *Interstitial Nephritis and Cirrhosis of the Suprarenal Capsule in an Infant Five Weeks Old.*
6. Stewart, T. G. *The Diagnosis and Localization of Tumours of the Frontal Region of the Brain.*
7. Wright, W. *Infantile Mortality and Goat's Milk.*
8. * Knox, R. *A Case of Actinomycosis of the Cheek and its Treatment by Iodide of Potassium.*

9. Jones, W. B. *The Spa Treatment of Cardiac Dilatation.*

1. Literature regarding this condition is scarce. It is supposed to occur oftenest in women, especially in the spring. White is unable to confirm this in his cases. The hemorrhage is from some unknown source in the stomach, and is often supposed to be a form of vicarious menstruation. White believes these cases of hemorrhage from the stomach, when on operation or autopsy no source for the bleeding can be found, to form a group constituting a distinct clinical entity. He has collected 29 cases, 27 women, in all of which operation or autopsy could show no cause for the bleeding. The disease in rarely fatal; 23 of his cases were between twenty-one and thirty-nine years. The symptoms in nearly all were hematemesis, epigastric pain and vomiting, often in repeated attacks, sometimes over a period of years. The etiology is unknown, the prognosis is good. Without operation or autopsy diagnosis from gastric ulcer is practically impossible. Operation should not be done for bleeding alone; prognosis without it is perfectly good. Solid food should be given very early. Dextrose should be the base of all enemata.

3. The saccular theory of herniæ maintains that the presence of a developmental peritoneal diverticulum or sac is a necessary antecedent condition in every case of ordinary abdominal hernia. Russell gives a detailed symposium of the etiology and anatomy of abdominal herniæ in general with a view of supporting his theory as to their congenital origin. At the present time those holding his view, he says, are very much in the minority.

4. This malignant form of syphilis is very much less common than it was twenty years ago, because, first, of the gradual attenuation of the virus, and, second, that the treatment is better. Malignant syphilis is that form of the disease with rapid ulceration of the skin, caries and necrosis of bone, and, later, visceral lesions, cachexia, anemia, and profound debility. One or more causes inducing this severe form of disease are usually present; poor physique; bad hygienic surroundings; malaria; other organic disease, especially renal, alcoholism, and, last, delayed and inefficient treatment.

He deplores the present tendency to delay treatment until secondary symptoms appear. Mercury should be given early, and to get the best results, by deep intramuscular injections. The cause of the disease assuming a malignant character must be removed if possible; the general condition must be bettered in every way. Increase and maintain tissue metabolism by diuretics and aperients and hot air baths. Potassium iodide should be given intermittently in doses not exceeding 10 gr. He has had good results with iodopin (iodine and sesame oil), and iodo-gelatin, a more agreeable preparation. For local lesions he uses chromic acid. He reports 10 cases in detail.

8. Knox reports a case of a girl of seven and one-half years, who came for treatment of a small irregular nodular abscess of the cheek, midway between upper and lower jaws on the right. There were several pointing, fluctuating areas. Two decayed molars had caused an abrasion of the cheek inside, from which the trouble had arisen. The pulse was 140, temperature 101°, and the child was in poor condition. The abscess was opened, and, as suspected, actinomycosis was found. There was steady improvement under iodide of potassium. The important features of this case he considers, first, the early diagnosis; second, the value of the iodide; third, the probable infection through decayed teeth.

British Medical Journal.

Nov. 3, 1906.

1. * Gordon, W., Harper, J. R. *Remarks on the Influence of Rainy Winds on Phthisis in Twenty-three Parishes of North Devon during the Forty five Years*, 1860 *to* 1904.
2. * Power, D'Arcy. *The Causes, Sequelæ and Treatment of Pericolic Inflammation.*
3. Andrews, O. W. *A Case of Appendicitis: Removal of a Stercolith; Passage of an Ascaris Lumbricoides Fourteen Days Later.*
4. Wright, A. H. *Concealed Accidental Hemorrhage.*
5. * Gardner, W., Goodall, J. R. *Chronic Metritis and Arteriosclerotic Uterus.*
6. Giles, A. E. *A Study of 146 Consecutive Cases of Ventrifixation of the Uterus.*
7. * Reed, C. H. L. *Changes in Uterine Fibroids after the Menopause, Considered with Reference to Operation.*
8. Reddy, H. L. *Indications for Cæsarean Section other than Pelvic Deformities or Tumours.*
9. Wallace, J. W. *Uterine Abscess: Metritis Diseccans.*
10. Evans, D. J. *The Treatment of Eclampsia.*
11. McMurtry, L. S. *The Surgical and Serum Treatment of Puerperal Sepsis.*
12. Ross, J. F. W. *A Study of Seventy Cases of Ectopic Gestation.*
13. Cameron, M. *Ectopic Pregnancy.*

1. An investigation lasting over a period of ten years in England and elsewhere on the influence of rainy winds in phthisis has lead the authors to conclude that such winds do raise the mortality of pulmonary tuberculosis. To confirm these views, they investigated the vital statistics of certain carefully selected parishes of Exmoor, England, — some parishes exposed to the rainy northwest winds, others well protected, — from 1860 to 1904. Their conclusions reached by their first investigations are amply confirmed. Furthermore, the say that the rainfall, either *per se* or by any effect on the soil, does not influence the mortality. It is the combined effect of wind and rain

2. Pericolitis is an inflammation of the connective tissue in immediate relation to the colon, either ascending or descending, rarely transverse, which does *not* arise in connection with appendicitis. Power reports 6 cases, some operated on, others not, — all with acute abdominal symptoms resembling appendicitis, often with a palpable tumor, not, however, in the appendix region. In the operated cases a pericolic, usually retroperitoneal, abscess was found, some with, some without, localized or general peritonitis. The causes are various: perforation of old ulcers due to chronic constipation, trauma from without, foreign bodies in the intestine. In mild cases the symptoms are often obscure and overlooked; in acute cases they are those of any acute abdominal inflammatory condition, with tumors sometimes in the later stages. The disease may subside without treatment; it may become chronic, causing a gradual thickening of the intestinal walls which can be easily mistaken for malignant disease; it may become acute, demanding immediate operation, or cause a subphrenic abscess or pneumonia. The treatment is that of a localized peritonitis.

5. Up to 1897 this has been a much neglected subject; at all times it has been the cause of great dispute. It is defined as a peculiar affection of the uterus of which the leading clinical feature is menorrhagia uncontrollable by drugs or by curettage. The views on this subject from 1860 to the present are given. Gardner and Goodall divide chronic metritis into two classes: Simple, a clinical entity in which the uterus is enlarged, hardened, symmetrical, where curettage has no effect, and where the uterine appendages are free from any organic disturbances to which the metritis might be secondary; second, *complicated*, which is the same as the simple type, plus the involvement of the other organs of generation. He describes nine hysterectomies with pathological findings. Normally after each pregnancy there is an increase of muscular and of fibrous tissue but more of the latter in proportion; this physiological condition can very easily become pathological. A true fibrosis is rare, it is usually a swelling of the fibrous tissue with more or less hyaline degeneration. Pathologically there are two groups of changes, — one inflammatory and the other arteriosclerotic. The latter is associated with and similar to arteriosclerotic changes in other organs. The causes of this condition are: (1) subinvolution, (2) inflammation and congestion, (3) new growths, (4) arteriosclerosis. The treatment is hysterectomy.

7. The expediency of operating for fibroids immediately preceding, during or after the menopause depends on the tumors themselves and their history, the menopause and its history, the influence of benign growths upon menstruation and the modifying influence of the physiological forces incident to the menopause upon such benign growths. The writer speaks of the evolution of fibroids and their retrogressive changes, especially necrosis, inflammation

and cancerous degeneration. He then considers the normal changes occurring at the menopause and the influence of fibroids on such changes, especially as exaggerating the menstrual function. He does not consider the theory of the innocuousness of fibroids after menopause a safe one. He concludes that the only safe place for uterine fibroids at any time is outside the patient's body, and that the menopause is a poor surgeon.

Annals of Surgery.

November, 1906.

1. * Krauss, W. C. *Dislocation of Vertebræ in Lower Cervical Region, Followed by Partial Restoration of Function.*
2. Dickinson, G. K. *The Omentum and its Functions.*
3. Sheldon, J. G. *A Further Report on a Case of Cirrhosis of the Stomach.*
4. Golden, W. W. *Rupture of the Intestine.*
5. Cartledge, A. M., and Bulliff, J. B. *Report of a Case of Intussusception Subjected to Operation.*
6. Laroque, G. P. *Angulation at the Sigmoid.*
7. * Lecord, E. R. *Hernia into the Ileo-colic Fossa.*
8. * Sharpe, N. W. *Trans-Uretero-Ureteral Anastomosis. I. Intra-peritoneal. II. Retro-peritoneal.*

1. The case reported by Krauss is remarkable. Dislocation of the sixth cervical vertebra from a diving accident was followed by all the clinical symptoms of complete transverse severance of the cord. A laminectomy was done on the fifteenth day following the injury, at which the cord was found thinned and flattened. Regeneration occurred, however, to a remarkable degree so that eight months later the patient could walk if supported and was able to do telegraphy.

7. An undoubted hernia of cecum, appendix, and four inches of each of the terminal ileum and ascending colon, into the ileo-colic fossa is reported. Retro-peritoneal hernia of this type is extremely rare. Recovery followed operation.

8. Sharpe after a careful review of ureteral suture gathered from the literature, together with his own experimental experience, draws the following conclusions: (1) The blood supply of the ureter is ample, of which probably the peri-ureteral arterial plexus is the most essential factor. (2) Operative procedures which preserve the blood supply, in particular the peri-ureteral arterial plexus, are ordinarily satisfactory. (3) When the integrity of the ureter is impaired, restitutional rather than destructive surgical measures should be followed. (4) Of which restitutional measures the various methods of uretero ureteral anastomosis are recommended. (5) Intra-peritoneal trans-uretero-ureteral anastomosis is an anatomical possibility; it is also a physiological success. (6) Retroperitoneal trans-uretero-ureteral anastomosis, whether anterior or posterior to the vena cava and aorta, is an anatomical possibility. (Further experimentation is necessary in order to prove that it is a physiological success.) The route followed is the shortest path between the two ureters. The technical difficulties are not excessive. It is highly probable that this method inpairs the ureteric blood supply less than any other method in vogue. The article is excellently illustrated.

Deutsche Medizinische Wochenschrift, No. 44.

Nov. 1, 1906.

1. * Wassermann, A., and Plaut, F. *The Presence of Syphilitic Antibodies in the Cerebro-Spinal Fluid in Dementia Paralytica.*
2. * Litten, M., and Levy, F. *Atypical Actinomycosis.*
3. Schlesinger, A. *The Differential Diagnosis between Renal Affections and Appendicitis.*
4. * Bloch, E. *Voluntary Dilatation of the Pupils.*
5. Heuman, G. *Electro-Medicamental Treatment.*
6. Geissler. *Tuberculosis of the Breast.*
7. * Schmidt, K. *The Diagnosis and Indications for Operation of Severe Abdominal Contusions.*
8. * Scheib, A. *The Healing of the Wound after Gigli's Pubiotomy.* (Concluded.)

1. In this interesting article Wassermann and Plaut describe the results of experiments with the cerebrospinal fluid in cases of general paralysis of the insane. They used a somewhat complicated method of demonstrating the presence of antibodies, previously described by Wassermann and Bruck. It rests upon the principle that when a specific antigen (toxic product) is brought in contact with the corresponding antibody, hemolysis will not take place on the addition of a hemolytic serum, because complement is absorbed. As the hemolytic agent they used serum of rabbits which had been treated with injections of sheep's blood and had been rendered inactive by heating to 56° C. The hemolytic serum is activated by the addition of normal serum of guinea-pigs and then shows marked hemolytic action for the red cells of the sheep, dissolving them completely within two hours. If, however, the activating serum is added to the mixture of cerebrospinal fluid from paralytics with extract from syphilitic organs, complement is absorbed, and on the further addition of the hemolytic (amboceptor bearing) serum, hemolysis does not take place. (Positive results in 32 out of 41 cases.) This demonstrates the presence of syphilitic antibodies in the cerebrospinal fluid of paralytics, for careful controls showed that no inhibition of hemolysis occurred with cerebrospinal fluid from non-paralytic subjects, or with the extract from non-syphilitic organs. These experiments prove that syphilis had been present in the author's cases, but do not necessarily show a causal connection between the two diseases.

2. Litten and Levy report a case of atypical actinomycosis, in which there were abscesses in the lungs, liver and brain; the pus contained small white granules visible to the naked eye, which, however, were not the typical "drusen" but consisted of a dense network of filaments, without clubs. The organism resembled Eppinger's actinomyces asteroides; it liquefied gelatin, was slightly acid-fast and pathogenic for mice, frogs and guinea-pigs, but without pseudo-tubercle formations.

4. Bloch's patient, a morphinist, was able at will to dilate his pupils, by concentrating his thoughts upon that object. Such observations are rare in ophthalmic literature, and are of interest as pointing to the probable existence of a center in the cortex for pupillary movements, and as offering an instance of voluntary control of so-called involuntary muscle fibers.

7. Following injuries to the abdomen by blunt force, such as kicks or blows, marked and increasing muscular spasm with tenderness on pressure are sufficient indications for immediate laparotomy.

8. An experience drawn from 170 cases of pubiotomy by means of the Gigli saw have led Scheib to advocate this method of increasing the pelvic outlet during labor over all others. The bones heal quickly and with small callus. Wounds of bladder or vagina are rare.

Münchener Medizinische Wochenschrift, No. 44.

Oct. 30, 1906.

1. * Velden, R. *The Intravenous Use of Strophanthin.*
2. * Veiel, E. *Remarks on Digalen.*
3. Schlafer, V. *The Biological Significance of the Photo-activity of the Blood.*
4. Wolff-Eisner, A. *The Components of Tetanus Toxin.*
5. * Lengfellner, K. *The Action of the X-ray on the Ovaries and the Pregnant Uterus of Guinea Pigs.*
6. Meyerstein, W. *The Early (Bacteriological) Diagnosis of Typhoid Fever.*
7. Baer, J. *The Proteolytic Action of Intracellular Ferments.*
8. Fock. *The Use of Alcohol in Pneumonia.*
9. Riehl, M. *A Case of Aneurysm of the Posterior Wall of the Left Ventricle.*
10. Peters. *The Report of the Cholera Observation Station at Küstrin in 1905.*
11. Schuberg, A. *The Interpretation of the Protozoa-like Bodies Found by O. Schmidt in Malignant Tumors.*

1. Velden reports favorably on the intravenous injection of strophanthin, recommended by A. Fraenkel. The effect in some cases falls little short of marvelous, compensation being brought about within a few minutes. It is indicated where the use of digitalis has been without effect, or where an immediate action is desirable. It is contraindicated where the heart muscle has been extensively damaged. The dose is .001 gm. not to be repeated for forty-eight hours on account of cumulation.

2. Veiel recommends the intravenous use of Digalen (digitoninum solubile Cloetta) in cases of acute cardiac failure. The action is almost immediate, but not so lasting as that of digitalis.

5. Lengfellner finds that the exposure of pregnant guinea-pigs to the X-ray just before delivery causes the offspring to be either stillborn, or of such slight vitality that death occurs in a few hours. Changes have also been found in the ovaries of animals so exposed.

Zeitschrift für Klinische Medizin, Bd. 60.
Hft. 3 and 4.

1. * Magnus-Levy. *The Influence of Disease on the Energy Potential (Energiehaushalt) in the Resting Stage.*
2. * Engel and Scharl. *Changes in the Concentration of the Blood after Ingesting Water.*
3. Gutzmann. *Investigations of the Limits of Speech Perception.*
4. * Rutkowski. *The Diagnosis of Cervical Ribs.*
5. * Schloessmann. *The Soluble Proteids of the Feces.*
6. * Koranyi. *The Percussion Note of the Spinal Column and its Diagnostic Importance. Also a Note on the Pleuritic (Paravertebral) Triangle.*
7. * Lazarus and Davidsohn. *Sarcoma of the Meninges with Many Lime Metastases in the Heart.*
8. * Benedict and Török. *Alcohol in the Nutriment of Diabetics.*
9. v. Leyden and Bassenge. *Carcinoma of the Sacrum.*

1. A study of the respiratory quotient in several diseases after the use of certain drugs.

2. After a considerable ingestion of water no considerable diminution of the concentration of the blood serum takes place. Even when it is accompanied by a considerable diuresis no evident hydremia can be demonstrated; on the contrary, at times an increased concentration of the blood is found. This applies both to normal individuals and those with a disturbance of water equilibrium. This shows the delicacy of the regulative mechanism of the body.

4. Rutkowski describes a case of bilateral neuralgia in a man of sixty due to the presence of cervical ribs. The very late appearance of symptoms in a congenital condition is the interesting point of the case. This seemed to be explained by a senile kyphosis gradually changing the position of the ribs and finally causing pressure on the nerve roots.

5. Schloessmann investigated the soluble proteids of the feces as follows: A twenty-four-hour amount is comminuted and diluted with water to a volume of 500 cc. After standing several hours it is filtered and the filtrate tested with 30% acetic acid for necleo-albumin. If this is present, it is filtered off and the filtrate tested for albumin (nitric acid, potassium ferocyanide or other methods). Nucleo-proteid is often present normally and is not increased by a considerable increase in nuclein-containing food. However, it is increased in various diseased conditions of the intestine, though not characteristically in any one disease. Soluble albumin never appears in a normal stool but appears in diarrheic cases. Albumose more rarely appears. The albumin almost always comes from the intestinal wall (serum albumin).

6. Korányiclaims priority over Grocco for the discovery of the paravertebral triangular area of dullness which is found on the side opposite to a pleuritic effusion. This paper is mainly a discussion of the note produced by percussion of the spinous processes of the various vertebræ in health and disease. In health from the first to sixth cervical there is very dull tympany, over the seventh cervical flatness, from the first to fifth dorsal a gradually increasing resonance, and from the sixth to eleventh resonance, over the twelfth dorsal flatness below which there is dull tympany to the sacrum and over the sacrum tympany. Under abnormal conditions of the prevertebral tissues these relations change. In emphysema of the lungs resonance extends higher on the dorsal vetebræ than normal; in mediastinal tumors or tuberculosis of the bronchial lymph nodes dullness extends down several vertebræ below the seventh cervical. Abdominal conditions similarly change the percussion relations of the lumbar and sacral vertebræ. Percussion of the latter in different positions of the body also yields information of value.

7. A case which began with arthritic pains in the legs, slight fever and sweating. This continued for three weeks and then there was one week of almost complete remission. Then fever, circulatory disturbance, albuminuria, headache, paralysis of the left sixth nerve and terrible arthritic pains, intervened and continued for one month when, shortly before death, prostration, tachycardia, tachypnea, left-sided pupillary change, and marked cutaneous and muscular hyperesthesia were added to the clinical picture. Autopsy revealed extensive dural sarcoma with erosions of the skull bones and lime metastases in lungs, kidney, stomach and heart, the latter very extensive. The absence of cerebral pressure symptoms and the presence of peripheral pain of cerebral origin are the noteworthy features of the case.

8. The authors attempt to show by substituting alcohol for a part of the food fat whether the acetone in these cases is derived from the fat. They find in diabetics that the acetone excretion is reduced by this alcohol substitution, but in non-diabetics there is little effect. In some cases there is also a decreased glucose and nitrogen excretion. In the metabolism of healthy individuals alcohol can replace proteids but less effectively than is done by carbohydrates and fats. On the other hand in diabetics alcohol seems more effective in replacing the proteids in metabolism than is the case with the fats and carbohydrates. These observations justify the use of alcohol in the diabetic dietary. Contra-indications for its use are albuminuria, neuritis, arteriosclerosis. It should not be used in diabetes occurring in childhood.

Die Therapie der Gegenwart.
November, 1906.

1. * Veit, J. *Tuberculosis and Pregnancy.*
2. * Eulenberg, A. *New Methods of Treatment in Epilepsy.*
3. Cimbal, W. *The Results of the Examination of the Cerebrospinal Fluid from 240 Lumbar Punctures, and their Bearing on Diagnosis and Treatment.*
4. * Katzenstein, M. *A Method of Medical Treatment of Acute Peritonitis following Appendicitis.*

1. Veit considers the indications for abortion in tuberculosis on the basis of observations on the weight of pregnant consumptives. He found that the normal woman when pregnant shows a regular increase of weight, which is more than proportional to the growth of the ovum. Among consumptives, those patients who showed a regular gain in weight, did well, and did not have a relapse during the puerperium, while those that showed a regular loss, that could not be accounted for by hyperemesis, all died soon after parturition. A third group, which gained little and irregularly, ran a serious course, and seemed in great danger. Veit advises the induction of abortion in the third group only; those of the first group will do well without it, and those of the second are lost in any case. Consumptives with hyperemesis formed an exception, in that they might be saved, in spite of loss of weight, by the induction of abortion. Tuberculosis *per se* is therefore not an indication for abortion, but each case is to be judged on its merits, a careful observation of the weight offering the best clew as to the course to be pursued.

2. Eulenberg has had favorable results from the restriction of salt in the diet, combined with the use of bromopan, or bread cooked with sodium bromide (1 gm. in 100 gm. bread). Bromipin acts fully as well as the bromides and is free from their disagreeable effects, especially dyspepsia and acne. He has tried cerebrin (a substance derived from brain tissue) in a number of cases, and noted benefit in a little less than one half, cure in none. Operation has given excellent results in a few cases of genuine epilepsy.

4. Katzenstein has seen inoperable cases of general peritonitis recover under the use of large rectal injections of normal salt solution, given very slowly to avoid exciting peristalsis. The beneficial effect is ascribed to an increased exudate of fibrin from the peritoneum, which, as his investigations on the healing of wounds have shown him, would prevent the rapid absorption of bacteria and toxic products.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 17, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,363	345	Quincy	6	3
Chicago	584	133	Waltham	10	2
Philadelphia	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	7	—
Baltimore	187	50	Brookline	6	1
Cleveland	—	—	North Adams	2	0
Buffalo	—	—	Chicopee	9	4
Pittsburg	—	—	Northampton	12	2
Cincinnati	—	—	Medford	6	1
Milwaukee	—	—	Beverly	4	1
Washington	—	—	Hyde Park	2	2
Providence	60	21	Newburyport	—	
Boston	203	53	Leominster	5	2
Worcester	30	4	Melrose	0	—
Fall River	34	15	Woburn	4	2
Cambridge	21	3	Marlborough	3	0
Lowell	36	12	Westfield	—	—
Lynn	14	4	Peabody	—	—
New Bedford	33	12	Revere	3	1
Springfield	21	3	Clinton	1	1
Lawrence	20	7	Attleboro	3	1
Somerville	26	9	Adams	3	1
Holyoke	19	16	Gardner		—
Brockton	8	1	Milford	8	2
Malden	11	1	Weymouth	3	0
Salem	18	8	Framingham	4	
Chelsea	13	4	Watertown	2	0
Haverhill	13	3	Plymouth	—	—
Newton	6	—	Southbridge	2	—
Fitchburg	9	2	Wakefield	2	—
Taunton	5	2	Webster	—	—
Everett	16	3			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOV. 14, 1906.

GEDDINGS, H. D., assistant surgeon-general. Directed to proceed to Ellis Island, N. Y., for special temporary duty, upon completion of which to rejoin his station. Nov. 10, 1906.

STONER, G. W., surgeon. Granted leave of absence for three days from Nov. 7, 1906, under paragraph 189 of the regulations.

GASSAWAY, J. M., surgeon. Granted extension of leave of absence for five days. Nov. 13, 1906.

COFER, L. E., passed assistant surgeon. Granted leave of absence for one month and eight days from Nov. 21, 1906. Nov. 8, 1906.

GOLDBERGER, JOSEPH, passed assistant surgeon. Granted leave of absence for twenty-one days, to be taken en route from Mexico City to Washington, D. C. Nov. 10, 1906.

AMESSE, J. W., passed assistant surgeon. Granted extension of leave of absence for five days. Nov. 14, 1906.

STEGER, E. M., assistant surgeon. Directed to report to the Medical Officer in Command, Ellis Island, N. Y., for duty. Nov. 12, 1906.

SPRATT, R. D., assistant surgeon. Granted leave of absence for one month and ten days from Dec. 6, 1906. Nov. 13, 1906.

FROST, W. H., assistant surgeon. Granted leave of absence for one day, Nov. 4, 1906. Nov. 3, 1906.

LONG, H. D., assistant surgeon. Temporarily relieved from duty at Ellis Island, N. Y., and directed to proceed to Washington, D. C., for temporary assignment to the Government Hospital for the Insane. Nov. 10, 1906.

FRICK, JOHN, acting assistant surgeon, Granted leave of absence for thirty days from Dec. 1, 1906. Nov. 10, 1906.

SAFFORD, M. V., acting assistant surgeon. Granted leave of absence for ten days from Nov. 9, 1906. Nov. 8, 1906.

STRAW, E. E., acting assistant surgeon. Granted leave of absence for ten days from Oct. 15, 1906. Nov. 9, 1906.

WALKER, T. DYSON, acting assistant surgeon. Leave of absence granted Acting Assistant Surgeon Walker for ten days from Oct. 18, 1906, amended to read for eight days from Oct. 23, 1906. Nov. 10, 1906.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for five days from Nov. 25, 1906. Nov. 12, 1906.

WHITE, R. C., acting assistant surgeon. Granted leave of absence for thirteen days from Sept. 28, 1906, on account of sickness. Nov. 10, 1906.

ROGERS, EDWARD, pharmacist. Temporarily relieved from duty at Stapleton, N. Y., and directed to proceed to Washington, D. C., for temporary duty. Nov. 12, 1906.

SCOTT, E. B., pharmacist. Granted leave of absence, without pay, for thirty days from Nov. 7, 1906. Nov. 9, 1906.

KEEN, WALTER H., pharmacist. Granted leave of absence for thirty days from Dec. 1, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING NOV. 24, 1906.

W. H. RENNIE, passed assistant surgeon. Detached from duty at Naval Hospital, Pensacola, and ordered to duty on the U. S. S. "Wasp."

O. J. MINK, assistant surgeon. When discharged from treatment at the Naval Hospital, Yokohama, Japan, ordered to report to the Surgeon General, U. S. Navy, Navy Department.

C. E. RYDER, B. F. JENNESS, and HARRY SHAW, assistant surgeons, U. S. N., and R. W. PLUMMER, passed assistant surgeon, U. S. N. Ordered to report to the President of Naval Medical Examining Board, Naval Medical School, Washington, on Dec. 1. 1906, for examination preliminary to promotion, and when discharged by the Board, to resume duty at present stations.

E. R. STITT, surgeon. Ordered to report on Dec. 1, 1906, to the President of the Naval Medical Examining Board, Naval Medical School, for duty as a member of that Board.

W. S. PUGH, JR., passed assistant surgeon. Detached from duty on the U. S. R. S. "Lancaster, and ordered to duty on the U. S. S. "Tacoma."

J. J. SNYDER, passed assistant surgeon. Detached from duty on the U. S. S. "Tacoma," and ordered to duty at the Naval Hospital, Philadelphia.

C. D. LANGHORNE, surgeon. Ordered to duty at the U. S. Naval Medical School Hospital, Washington, on Nov. 30, 1906.

APPOINTMENTS.

DR. ABNER POST has been appointed Assistant Professor of Syphilis at the Harvard Medical School.

L. W. BREMERMAN, A.M., M.D., of New York City, has been appointed Professor of Genito-Urinary Diseases in the New York School of Clinical Medicine, to fill the vacancy caused by the death of Prof. William K. Otis, M.D.

RECENT DEATHS.

JOHN ROBBINS MANSFIELD, M.D., M.M.S.S., died in Wakefield, Nov. 11, 1906, aged seventy-four years,

DR. I. E. ATKINSON, of Baltimore, died Nov. 24, of pneumonia at the age of sixty years. He graduated at the Medical School of the University of Maryland in 1865, and had been professor of therapeutics and materia medica in that school. He was one of the most prominent and successful practitioners of medicine in Baltimore.

OTIS HUMPHREY MARION, M.D., M.M.S.S., died in Allston, Nov. 27, 1906, aged fifty-nine years.

BOOKS AND PAMPHLETS RECEIVED.

Outlines of Human Embryology. A Medical Students' Handbook of Embryology. By George Reese Satterlee, M.A., M.D. Illustrated. London: Chapman & Hall, Limited. New York: John Wiley & Sons. 1906.

Transactions of the Obstetrical Society of London. Vol. XLVIII. For the year 1906. Part three for June and July. London.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. II. Edinburgh and London: William Green & Sons. 1906.

Retinoscopy (or Shadow Test) in the Determination of Refraction at One Meter Distance, with the Plane Mirror. By James Thorington, A.M., M.D. Fifth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

Massage, an Occupation for the Blind. By L. Webster Fox, A.M., M.D. Reprint.

Ear Affections and Mental Disturbances. By Emil Amberg, M.D. Reprint.

Essentials of Human Physiology. By D. Noël Paton, M.D., B.Sc., F.R.C.P. Edin. Second edition, revised and enlarged. Illustrated. Edinburgh and London: William Green & Sons. Chicago: W. T. Keener & Co. 1905.

Text Book of Comparative General Pathology. For Practitioners and Students of Veterinary Medicine. By Professor Dr. Th. Kitt. Authorized translation by Dr. William W. Cadbury. Edited with notes and additional illustrations by Dr. Allen J. Smith. Illustrated. Chicago: W. T. Keener & Co. 1906.

Address.

THE MAJOR SYMPTOMS OF HYSTERIA.*

BY PIERRE JANET M.D.,

Professor of Psychology at the Collège de France; Director, Psychological Laboratory, Salpêtrière.

XV.

Allow me in this last lecture to remind you of the essential pictures you should keep before your eyes in order to form a general idea of the hysterical disease. We have always recognized in the different forms of somnambulisms the exaggerated development of an idea, of a feeling, of a psychological state; in a word, of a system of thoughts which took place outside the memory and the normal consciousness. This dissociation of a psychological system was manifested not only by the preceding development, but also by amnesia, bearing not only on the somnambulic period, but even in remarkable cases on the whole of the idea and of the feeling. When afterwards we studied various accidents bearing on the movements of the limbs, we recognized that small systems of movements and sometimes great systems, rich and old, constituting real functions, developed themselves without control to an exaggerated degree, and gave rise to tics and choreas of various kinds. This lack of control was manifested through negative phenomena closely connected with the preceding ones, paralyses and anesthesias, which seemed to play here the same rôle as the amnesias of somnambulism. When we came to the sensorial functions, to the function of speech and even to the visceral functions, we saw the same agitation under the forms of tics, of pains, and of hallucinations, accompanied with certain losses of control which constituted various anesthesias bearing on the special senses as well as on the general sensibilities, or which brought with them the disappearance from the consciousness of certain organic wants and of the acts connected with them.

In our last lectures we put into evidence stigmata proper in the minds of hystericals, suggestion, absent-mindedness carried to unconsciousness, alternation which we summarized through the general idea of retraction of the field of consciousness and general stigmata, the absence of attention, the lack of feeling and of will, which are connected with depression, with the lowering of the mental level. This is a clinical picture that must suffice in practice, but there is now, as formerly, a medical fashion to give definitions of hysteria, and we must try to derive from this picture a general idea of the disease.

These definitions of hysteria have evolved: Though they appear numerous nowadays, they come so close to one another that they blend together. For instance, there is no opposition between the definitions that entitle themselves physiological and those that call themselves psychological. The former are only the translation of the most commonplace psychological definitions into words vaguely borrowed from the language of anatomy. Now it is not discussed that hysteria is, above all, a psychic malady. In making hysteria a psychological affection, we do not intend at all to confound it with some sort of other or mental malady. We even say that it is nowadays the most characteristic of all mental diseases and that it is important to distinguish it well.

The first conception takes into account the great importance of fixed ideas in hysterical accidents. Charcot, and after him Moebius, said: "We must consider as hysterical all the morbid modifications of the body that are caused by representations" (1880–88). Strümpell, Bernheim, and more recently Babinsky, repeated quite similar definitions: "A phenomenon is hysterical when it can be produced through suggestions and cured through persuasion." Let us take no account of the end of the sentence, since treatment and cure are delicate things, and much might be said about those cures through persuasion frequent in many diseases and not at all characteristic of hysteria. Let us only retain the beginning: hysteria is defined by suggestion.

In the first place, I believe that this conception is more just in theory than in practice. It is we who have repeated that the accidents seem to be brought about by ideas; it is not quite exact that we always observe these ideas. In a few cases, it is true, the patient seems to have the fixed idea of the accident itself, but it is a singular exaggeration to say unreservedly, "The hysterical realizes his accident such as he conceives it." There are many hystericals who do not think of the accidents they have. With some patients the accidents develop insidiously, unknown to them. In other cases, it is incontestable that the accident develops with details, with an evolution that the patient does not know. Lastly, if these patients have fixed ideas, it should be well remarked that these fixed ideas have no relation with the medical form of their accident. One has the fixed idea of her mother's death; it is not at all the fixed idea of somnambulism and of its laws. Another has the fixed idea relative to the flight of his wife who robbed him; it is not the fixed idea of dumbness which is his accident, and so on.

I should like to present, in the second place, an argument which is still weak, but whose importance will grow more and more. It relates to the physiological and psychological laws of hysterical accidents, laws we are ignorant of and the subjects are ignorant of, like us. I remind you of the law of somnambulisms, which in my opinion is important, but still demands demonstration. Somnambulism is followed by an amnesia which bears not only on the abnormal period, but on the idea itself that fills it and on all the feelings connected with it. Do the subjects know this law? How very unlikely!

In many cases, you will tell me, the paralysis might very well be brought about by an idea, since the popular idea coincides with the very limits of the paralysis. This is, in general, simply because the popular ideas are just. But there are some cases in which the popular analysis proves ignorant and in which hysterical paralysis analyzes the functions much better than good sense does. Why are the disturbances of speech accompanied with right-side hemiplegia? Why are there cases of hemianopsia? How is it that there are distinct paralyses of the monocular vision and of the binocular vision? Why are there disturbances of accommodation? Do you really believe that the patient has the idea of the interesting features of contractures? It will be later a matter of astonishment that physicians should have attributed to the caprice of the subject all the psychological and physiological laws that will be discovered in these various accidents.

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* Author's abstract report of the fifteenth lecture, delivered Nov. 16, at the Harvard Medical School.

Lastly, I insist on a third argument. These definitions have a meaning only on condition that we use the words " fixed idea " and the word " suggestion " in a particular sense. All these authors imply tacitly that these ideas act in a special manner on the mind and organism of these patients. I answer that it is this special action that is the essential point; it is this action that constitutes hysteria, and you have not the right to make a definition in which you tacitly imply what is essential. Begin by defining what you call suggestion, and afterwards you will say, if you choose and if it is true, that hysteria is a disease due to suggestion. But, to define suggestion, you will be obliged to introduce into your definition certain new notions which are precisely those I asked for.

You will be obliged to recognize that these ideas develop out of measure because they meet with no counterpoise, because they are isolated owing to a strange absent-mindedness of the subject. When you have once admitted this retraction of the field of consciousness as one of the conditions of the suggestion itself, why should you maintain that it can produce nothing but suggestion?

We then arrive to another group of definitions in which I range mine; they are definitions into which enter the phenomena of dissociation of consciousness. Suggestion itself is but a case of this dissociation of consciousness. There are many others besides that one sees in somnambulisms, in automatic words, in emotional attacks, in all the functional paralyses. The point which seems to me to be the most delicate in this definition is to indicate to what depth this dissociation reaches. In reality we must remember that dementias themselves are dissociations of thought and of the motor functions. We must remember that in hysteria the functions do not dissolve entirely, that they continue to subsist with their systematization. What is dissolved is personality, the system of grouping of the different functions around the same personality. *Hysteria is a form of mental disaggregation characterized by the tendency to the dissociation of the systems of ideas and functions that constitute personal consciousness.*

The most important problem is not for me to understand what hysteria in general is, but to account for the practical evolution of the accidents with such or such a person. The difficulty we meet with in this is a difficulty of localization. How is it that with such a person the hysteria bears on the arm, with such another on the stomach, and that with a third it only reaches a system of ideas, which it turns into a somnambulism? The starting point of hysteria is the same as that of most great neuroses; it is an exhaustion of the higher functions of the encephalon. The diminution, the lowering of the nervous tension, might bring about a general lowering of all the functions; this is what takes place in the psychasthenic neuroses, in which the localization in a special point exists in a rather slight degree. But with hystericals, in consequence of particular disposition, the lowering of the nervous strength produces in some manner a superficial retraction. Consciousness which is no longer able to perform too complex operations gives up some of them. No doubt in a certain number of cases the localization is effected through suggestion, but this is only a particular case. The localization may also be effected according to the laws of psychological automatism; for instance, an individual always recommences the same accident each time he experiences an emotion, though it has no relation with the first event. Then the dissociation simply bears on a function that for some reason or other remains weak and disturbed; in many cases the localization of the paralysis on one leg is due to the fact that in childhood the leg was affected with rachitis, or remained long in a bandage. Fourth, the function that disappears is the most complicated and the most difficult for the subject. Fifth, we remark a very curious fact which we recognize without always being able to account for it. The dissociation bears on the function that was in full activity at the moment of a great emotion. It is the study of these laws, it is the search for these conditions, that constitute the important part of the study of hysteria.

If these lectures have inspired you with some interest for these studies, if they can contribute to develop in your beautiful country the researches of pathological psychology beside the researches of experimental psychology so brilliantly represented, I think you will not have lost too much time in trying to understand an ill-spoken language. For my part, I deeply feel your kind attention and reception, and I am proud of having had for a few days the honor to teach you and of being the colleague of the masters of Harvard University.

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Prize Essay on Epilepsy.— Dr. W. P. Spratling announces a prize of $500 offered by the Association for the Study of Epilepsy for the best essay on the etiology of epilepsy. The money is provided by persons interested in the work of the association. All essays submitted must be in English, must not contain more than 15,000 words, and must be sent to Dr. W. P. Spratling, Sonyea, N. Y., by Sept. 1, 1907. The name of the person submitting the essay must not appear on it, but must be put in a sealed envelope on which is written a motto, which motto should also appear at the top of the first page of the essay.— *Jour. Am. Med. Asso.*

Original Articles.

REMARKS ON TWO CASES OF RUPTURE OF THE LIVER, WITH CASE REPORTS.

BY F. B. LUND, M.D., AND W. C. HOWE, M.D.,
Boston City Hospital.

Rupture of the larger, solid, abdominal viscera — the liver, spleen or kidneys — results from severe blows, falls, or the crushing of the body between two heavy objects. The soft, parenchymatous tissue of which these organs are composed is abundantly supplied with blood vessels, and the danger is chiefly from hemorrhage.

The kidneys are so situated on account of their retroperitoneal position that the hemorrhage is held back and the bleeding is frequently checked. In other words, a retro-peritoneal hematoma is formed. But if the anterior capsule is torn so that the rent communicates freely with the peritoneal cavity the bleeding is rapid and serious and may be quickly fatal.

The spleen is practically an intraperitoneal organ. Ruptures of the spleen always communicate with the peritoneal cavity and bleeding is always dangerous and frequently fatal within a short time.

In cases of complete rupture of either the spleen or one kidney the removal of the organ is practised as the safest and most certain method of checking the hemorrhage. The removal of one kidney is ordinarily safe if the other is in healthy condition, and the removal of the spleen seems to have no permanent unfavorable effect upon the health of the individual, so that in case of extensive rupture of these viscera with serious bleeding we are free to adopt the method of removal of the organs.

The liver, however, which is the largest of the solid viscera and most abundantly supplied with blood vessels, being situated directly astride of the vena cava, which ramifies into its interior through the hepatic veins, also receiving the blood of the portal system and of the hepatic artery, is an organ both essential to life and technically almost impossible of removal. There is no special blood vessel which we can tie to check a hemorrhage of any portion of the organ, and therefore our resources in cases of rupture of the liver have ordinarily been regarded as limited to gauze packing or the use of the actual cautery. In recent years, however, it has been demonstrated by various surgeons who have removed tumors of the liver that suture of that organ is successful in checking hemorrhage and promoting healing, and it has been demonstrated that suture is a method applicable to certain ruptures of the organ. In cases where it can be applied it is much safer than gauze packing. The sutures do not require removal and therefore the pain and danger from secondary hemorrhage due to taking out the gauze is not to be considered.

Certain special problems are presented in suture of the liver, — notably by the presence in the comparatively soft parenchymatous tissue of numerous large venous trunks. In order to successfully appose the two bleeding surfaces of a ruptured liver, we must pass a suture in the first place of such coarse material as not to cut through the parenchymatous tissue, and pass it so deeply as to give it a large portion of the liver to draw upon. A very coarse silk is an excellent material for the suture of wounds of the liver, and the flat,ribbon-like shape of kangaroo tendon ought to make it also an excellent material for that purpose. Kousnetzoff and Pensky have devised needles very much resembling blunt Hagedorn needles, being similar in shape but slightly more elastic, which, owing to their blunt points and pliability, can be pushed through the liver, avoiding the blood vessels and minimizing the danger of injuring the latter. The writers employ blunt Hagedorn needles for the purpose of suturing the liver. Various ingenious methods have been devised by Kousnetzoff and Pensky for the closure of wounds of the liver due to accident or to removal of tumors, especially certain loop sutures for resection of portions of the liver. In linear ruptures of the liver, however, such as Case I reported in this paper, especially if they are in positions difficult to get at and if the patient has been weakened by considerable hemorrhage, the method of suture must be simple and rapid. In Case I, a rupture of the dome of the liver which had caused extensive hemorrhage into the peritoneal cavity was closed by five sutures of coarse silk passed by an ordinary large Hagedorn needle. Access to the dome of the liver was obtained by passing the left hand of the operator up under the diaphragm and drawing the liver downward and pushing it inward toward the median line. The ribs being lifted by the hand of an assistant, these coarse sutures could be placed and tied without difficulty. By the traction downward and inward upon the liver the hemorrhage was checked, so that as the liver was held in the left hand, the sutures could be passed with the right. Then with the sutures held taut by Dr. Stickney, who assisted, the liver was let go, and it was found the bleeding was checked. Then the sutures were tied from above downward successively. To the operator's delight it was found that they controlled the somewhat serious hemorrhage. The subsequent progress of the patient was so favorable as to lead the writer to believe that whenever feasible, ruptures of the liver should be closed with sutures rather than by gauze packing. If the blunt needles for suture of the liver in this case had been at hand it would have presented still less difficulty.

Case I. F. A., fifteen years old, errand boy, was admitted to the Relief Station on the afternoon of July 2. He was said to have been caught between the elevator and the floor in such a way as to violently compress the lower chest. He was pale, restless and in considerable shock. The heart's action was regular, with an occasional intermission. There were no murmurs. The pulse was full and strong at the rate of 70. There was moderate spasm over the right upper quadrant of the abdomen and some tenderness over the lower ribs in the anterior axillary line on the right. There was also some tenderness over the right scapula. No fractures were made out. A large flaxseed poultice was applied to the abdomen which relieved the pain so much that the boy went to sleep. At about seven P.M., however, he began to complain of pain over the liver and in the right axillary line on breathing. His pulse remained at 70 and was full and strong. One of the writers saw him about two hours after entrance and found very marked spasm of the rectus and external oblique muscles over the right hypochondrium. The pulse was still full and strong. There was marked pallor, and dullness in the flanks. It seemed that these symptoms could only mean a serious internal abdominal hemorrhage. The boy was therefore etherized and the abdomen opened by an incision through the upper portion of the right rectus muscle. A large amount of free blood was found in the abdominal cavity. The incision was carried upward to the costal margin and downward nearly to the level of the umbilicus. A deep longitudinal rupture was found on the dome of the right lobe of the liver, running antero-posteriorly, about six inches long and two inches deep. With the hand introduced above and to the outer side of the liver, it was drawn downward and inward, while the diaphragm was held up by a retractor in the hand of an assistant. As noted above, this traction proved to check the hemorrhage. With a very coarse, full curved Hagedorn needle, six interrupted silk sutures were passed deeply into the substance of the liver about three quarters of an inch from the line of rupture so as to close the latter. It was noted that these sutures effectually checked the bleeding. A very large amount of clotted blood was washed out of the abdomen with hot salt solution. The wound was closed with interrupted silkworm-gut sutures, a small wick being introduced down to the wound in the liver. Salt solution by rectum was administered through the night.

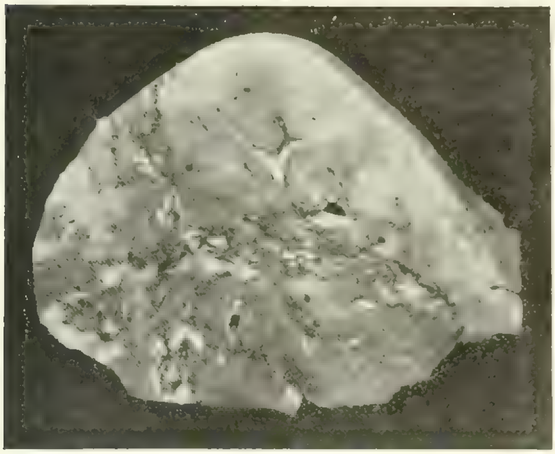
Fig. 1. – Photograph of gross section of the right lobe of the liver, showing the lines of rupture (Case II).

The next morning the boy was in good condition and during the next few days improved rapidly. After removal of the wick there was a moderate discharge of bile from the sinus. Ten days after the accident a good deal of bile came out along the sinus and the discharge was slightly purulent. There was a certain amount of suppuration along the track of the drain, but the patient left the hospital practically well one month after the accident.

There will, however, be a large number of cases of rupture of the liver in which suture is not applicable owing to the extent, depth or inaccessibility of the injury. Even in these cases, as Moynihan has pointed out, one or two sutures may often be employed and will often close the rent so that the problem of packing the remainder of the wound becomes much simplified. In these cases, of course the only practical resource is gauze packing, and this, though unsatisfactory, has been successful in a fairly large number of cases. As Moynihan remarks, "In all contused wounds, extensive lacerations or gun-shot wounds this method is almost certain to be necessary."

Case II is the report of a case in which this method was employed, both on account of the extent of the injury and because the patient was in such poor condition as to contra-indicate any method which consumed more than the shortest possible time. In spite of the unfavorable conditions the patient lived a week after the operation; the gauze packing was efficient in controlling hemorrhage, and, as the autopsy report shows, the lines of rupture were covered with fibrin and blood clot. The writers were able to secure a photograph of a gross section of the liver, showing the numerous lines of rupture.

Case II. J. C., thirty-three years old, was admitted to the hospital on Aug. 14, 1906. One hour before, he had fallen from his wagon, and had been run over, two wheels of his wagon having run over his abdomen. At the time of admission he was in a state of profound shock; pale, extremities cold, sweating, no radial pulse palpable. No bony injuries were made out; there was evidence of recent contusions over right anterior superior spine of ilium; the abdomen was generally rigid. One pint of salt solution was at once given intravenously, and repeated in an hour, with the result that the pulse could be counted at the wrist, — rate 128. Three hours after admission, dullness to percussion could be made out in both flanks; the abdomen was rigid and tender. A median incision was made above the umbilicus, under ether; on opening the peritoneum, there was found a large amount of blood clot and fluid blood; on exploring the anterior and superior surface of the liver, many ruptures of the organ were found, one extending through the entire parenchyma of the right lobe. No other visceral injuries were found. The patient's condition became poor during this exploration, and the radial pulse barely perceptible; the ruptures of the liver were so extensive that suture was impracticable; strips of gauze were packed between the diaphragm and dome of the liver, and the hemorrhage apparently checked. The abdominal wound was partially closed with silkworm-gut sutures. During operation, salt solution was given in the mammary region, and later a shock enema.

The following day the patient had a pulse of 100, the abdomen was not distended, there was no vomiting; the bowels were moved by enema. On the third day, because of vomiting, he was given nutrient enemata; the abdomen was not distended or tender; there was a slight amount of serous discharge from the abdominal wound tinged with blood.

On Aug. 19 (five days after injury) he vomited several times, the abdomen was moderately distended with gas; removal of the gauze packing was followed by no hemorrhage. His temperature was 101.5 and his pulse growing weaker in spite of stimulation.

He died on Aug. 20, six days after the injury.

The autopsy report follows:

The autopsy was done twelve hours, post-mortem.

Body is that of a well-developed, fairly well nourished white male adult. A vertical incision 13 cm. in length is located 1.5 cm. to left of umbilicus and extends 12 cm. above it. This incision is closed by eight interrupted catgut sutures and the edges of this incision can be easily separated. At the upper angle of this incision there is a gauze drain which passes backward into peritoneal cavity. In the middle portion of the right inguinal region, extending backward over trochanter, there is an ill-defined narrow area, dark blue, in color, resembling a bruise.

Peritoneal cavity. — The peritoneum in the region of the abdominal incision described above is injected and almost lusterless. In this region the opposing surfaces of intestinal coils are fastened by small deposits of sticky exudate. In the upper part of this area a gauze drain passes backward and upward and rests on the post-parietal peritoneum covered by the gastrocolic omentum. In the ileocecal region there is about 100 cc. of fluid and clotted blood. Beneath the posterior layer of the peritoneum in the region of the sigmoid there is a small area of blood-stained tissue and the colon at this point is covered by a small amount of exudate.

Pleural cavities. — In the left pleural cavity there are a few fibrous adhesions more marked at the base. The right pleural cavity is almost entirely obliterated by firm fibrous adhesions, tightly binding lung to diaphragm. The sixth, seventh and eighth ribs of the right side show an oblique fracture extending from the superior surface of the rib forward and downward in the post-axillary line.

Lungs. — The right visceral pleura is thickened. The upper and middle lobes of the right lung are dark red in color and from their cut surface bloody frothy fluid escapes. The lower lobe is a salmon color and the cut surface is moist. The lung is crepitant throughout. The upper lobe of the left lung along its external surface shows a few emphysematous bullæ and its crepitation is slightly increased. The left lower lobe is dark reddish blue in color and on section a thin, slightly blood-tinged fluid escapes.

Liver. — Weight, 2140 gm. Capsule is broken by numerous ruptures and covered by irregular masses of blood clot and fibrin. These are marked at the right lateral border, the largest being 19 cm. in length, the lines of rupture being covered by blood clot and fibrin. In this region are also many irregular light yellowish areas, the largest 7 x 2 cm. The under surface of the left lobe shows a mottled light yellow and dark area slightly raised above the surface 3 x 3 cm., and a small rupture 3 cm. long covered with blood clot and fibrin. The under surface of the right lobe contains numerous pale yellow and mottled areas and several lines of fracture which are extensions of ruptures on upper surface of the right lobe. The cut surface shows that lines of rupture extend through the entire substance of the right lobe. These lines are irregularly mottled with dark red and pale yellowish areas and average 2 cm. in width. Closer examination shows the ruptures to be filled with adherent clots, and the edges lined by pale yellow areas. A blood clot binds ruptured edges of quadrate and left lobes together for a distance of 3 cm. near their middle point. The uninjured liver tissue is quite pale and markings are indistinct. The surface is pale mottled yellow in color. The gall bladder is distended with bile.

Scharlach R. shows the cells of the lobules in the region of the ruptures to be filled with small fat globules for considerable distance from the line of rupture. The lobules in the uninjured tissue show several small fat globules in the cells, diffusely scattered and more in the region of central vein.

Kidneys. — Weight, 350 gm. Cortex, 8 mm. The capsule strips easily. Right kidney shows at the center of the pelvis a rupture 1 cm. in depth, the sides of which are fastened together by a blood clot. Cortex is uniformly pale yellow in color. The glomeruli are visible as glistening red dots and pyramids are deeply congested.

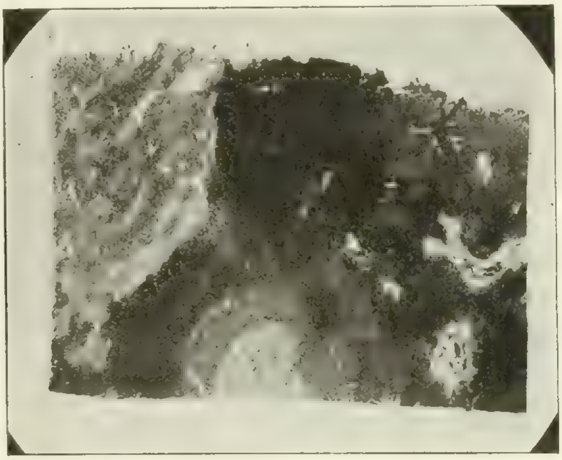

FIG. 2. — Photomicrograph of section of liver (Case II); the line of rupture appears in the middle of the section, filled with blood-clot and fibrin: normal liver tissue at the sides and below (low power).

Scharlach R. shows many small fat globules in epithelium of straight tubules and a few small globules in the epithelium of convoluted tubules.

ANATOMICAL DIAGNOSIS.

Numerous ruptures of liver with localized peritonitis. Infarction of liver. Rupture of right kidney. Chronic pleurisy. Compensatory emphysema. Fracture of ribs. Edema and congestion of lungs.

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SUBCUTANEOUS RUPTURE OF THE LIVER.

BY JOSHUA C. HUBBARD, M.D.,
Third Assistant Surgeon, Boston City Hospital.

WHILE rupture of the liver is by no means a rare condition it is not of sufficient frequency to be met many times by any one surgeon. Thöle-Danzig[1] states that there have been about 300 operations for open injuries of the liver and about 100 for subcutaneous rupture reported.

Etiology. — Rupture of the liver may be caused by either direct or indirect violence. The direct injury is usually a blow on the abdomen or side of considerable force, a kick by a horse, a blow by a plank thrown by a circular saw against the abdomen of the operator, a crushing force as when a man is run over or caught between two cars. Cases have been reported where a very slight injury was sufficient to rupture a liver already diseased. Indirect injury is caused by contra-coup as when one falls from a height and strikes on the head or feet. In 151 cases collected by Henzelman one third were caused by indirect violence.

Pathology. — In as much as the liver is a large, heavy, inelastic mass it has characteristics which favor rupture. Naturally, an enlarged diseased liver ruptures more easily than a normal one. Ruptures vary in extent from slight tears under the capsule and not including it, to large rents which almost divide the liver into pieces. The site of the rupture is more frequently found in the right lobe and on its convex surface than in the left lobe or on the concave surface. Combining the statistics of Mayer and Ogston on this point there were 63 ruptures in the right lobe to 21 in the left. It is not infrequent for several tears to be present at the same time. Failure to find more than one of these accounts for some of the fatal cases.

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[1] Deut. Zeitschr. Chir., Oct., 1905.

Symptoms. — Immediately following the receipt of the injury symptoms of marked shock are usually present, vomiting, rapid and weak pulse. rapid respiration, pallor, sweating and, perhaps, a subnormal temperature. The symptoms characteristic of the condition itself are rigidity and spasm of the abdominal muscles which may be very marked. In fact I have never seen more board-like rigidity than in a recent case of multiple liver injuries. Tenderness which at first is more or less general over the abdomen becomes more and more localized over the liver as time goes on. The respiration is rapid and shallow from an attempt to keep the liver as quiet as possible. There is shifting dullness in the flanks and the ordinary symptoms of hemorrhage more or less marked according to the amount of blood in the abdominal cavity, restlessness, sighing respiration, thirst, a rapid, weak pulse steadily becoming poorer in quality and more rapid in rate, and constantly increasing pallor. While jaundice is spoken of as a symptom which aids in the differential diagnosis its appearance is too late to be of any real help. It comes from the absorption of any bile which may have escaped from the tear into the abdominal cavity. The proportion of cases showing jaundice is small.

Diagnosis. — To differentiate immediately the condition of shock from that of an internal concealed hemorrhage coming from the rupture in the liver is exceedingly difficult and the diagnosis can be made in most cases only by observation lasting for an hour or two. The important conditions from which to differentiate rupture of the liver are contusion of the abdominal wall, fracture of the ribs and intrathoracic injury. As the treatment for rupture of any one of the abdominal organs is identical, it is wrong to waste time to differentiate rupture of the liver from rupture of the intestine, etc. The diagnosis of intra-abdominal injury, which is the diagnosis on which treatment is based, is made by the continuance of the rigidity of the abdominal muscles after the local application of heat and a steadily rising pulse, dullness in the flanks which shifts with change in position and localized tenderness. The location of the tenderness and spasm is a guide to the organ injured, and if it lies over the liver then in all probability the lesion will be found in that organ.

Prognosis. — The mortality of rupture of the liver either open, or subcutaneous, is high: Mayer, 207 cases, 86.6% mortality; Edler, 547 cases, 85.7% mortality; Fraenkel, 31 cases, 45% mortality; Tilton, 25 cases, 62.5% mortality. The more recent statistics of Fraenkel and Tilton, while treating with a smaller number of cases, seem to show the benefit of modern methods. In Edler's 162 fatal cases hemorrhage was the cause of death in 69 and 69 died within twenty-four hours. The factor which has the greatest effect on prognosis is the length of time elapsed from the receipt of the injury to the operation. This is shown most clearly by the statistics of Thöle-Dantzig. The operative mortality in the first twelve hours is 55%, from thirteen to twenty-four hours 67% and after twenty-four hours 78%.

Treatment. — The first indication is the relief of the condition of shock by heaters, morphia, strychnia and the infusion of salt solution, remembering always the possibility of a concealed hemorrhage. Noetzel[2] recommends, however, that in any case where a surgeon, accustomed to see intra-abdominal injuries, even suspects such a condition, he do an exploratory laparotomy at once, not waiting for the cessation of the shock. He says that such an exploration does the patient no harm. He is diametrically opposed to those who believe that a patient in shock should not be operated upon.

I believe, on the whole, that it is better to let the patient rally a little from the shock before operating. As the change in the physical characteristics of the abdomen caused by the application of heat has a great bearing on the diagnosis, hot flaxseed poultices should be frequently applied. A frequent record of the pulse should be kept. When the condition of shock has begun to lessen then is the time for the consideration of the advisability of an operation. With the persistance of the abdominal regidity and tenderness and an increase of the amount of dullness in the flanks with a steadily rising pulse, a laparotomy should be done at once. An incision above the umbilicus should be made and the abdominal contents quickly examined. If a tear in the liver is found the bleeding may be controlled in one of two ways, — by suture or by packing. To suture the rent blunt-pointed needles are used and a large amount of liver tissue is included on either side of the tear that the stitches, which are not tied very tight, may not cut out. Because of the low blood pressure in the portal circulation but slight pressure is needed to control the bleeding. If suture is inapplicable because of the site or character of the tear the gap may be packed with gauze. This packing must be placed carefully and firmly and under inspection if possible. It is, therefore, important to get as close to the operating area as possible. As the rupture occurs on the convex surface more frequently than on the concave it may at times be difficult or impossible to expose the torn portion of the liver. As aids it is recommended to lift the edge of the ribs by a retractor, to enlarge the incision by a second running more or less at right angles to the first along the border of the ribs and to make a thoracic abdominal flap by dividing several of the ribs. This last suggestion, the thoracic abdominal flap of Micheli, seems an unnecessarily severe operation and the incision along the rib margin divides muscle fibers and thus favors later the formation of a hernia. From the observation of a case of my own and of those in the hands of others, I question the ability of the surgeon to place a packing from below firmly so that it will stay in place in a large proportion of those cases where the rupture is on the convex surface. The constant motion of the liver with respiration will easily loosen such a packing A packing, however, placed from above, working through the pleural cavity, can be forced more firmly between the diaphragm and liver into the rent. Such a route has been followed in a number of gun-shot wounds of the liver where the bullet first passed through the pleural cavity. Terrier and Auvray [3] say that in a great number of cases where the liver is attacked in this way the healing follows rapidly without complications or the development of pneumothorax. In those cases where the rupture is on the dome I would suggest that the transpleural route be followed. After the site of the tear has been determined by a median laparotomy a portion of rib is excised subperiosteally, the diaphragm is sutured about the space left by the excision of the rib to shut off the pleural cavity and is then incised. Through this opening a firm packing can be placed, as the diaphragm above and the liver below offer some resistance against which to push in the packing. There seems less probability of this packing working loose through the influence of respiration than when the gauze projects through the laparotomy incision. In spite of the statistics of Giordano, quoted by Noetzel, showing a mortality of 43% for suture and 37% for tamponade, suture is to be preferred where possible. The use of the cautery to control the bleeding is not recommended as either suture or tamponade alone or combined will suffice and leave no slough to come away.

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[2] Beitr. Klin. Chir., Bd. 48. Hft. 2, 337.

A fairly large amount is written in all the articles to emphasize the importance of removing all the bile which may have escaped into the abdominal cavity through the rupture of any of the ducts or the gall bladder. The danger from this bile has, I think, been overestimated, judging from the lack of symptoms caused by what is accidentially spilled in the ordinary gallstone operation. Statements also appear that the blood from a ruptured liver is more likely to cause peritonitis than the same amount of ordinary blood, from the fact that it is of portal origin and hence loaded with bacteria which it has received from the intestine. This should be proved before it is copied further.

C. C., boy, thirteen years old, was brought to the Relief Station on March 9, 1906, with a history of having fallen down stairs. He was conscious, cold and sweating. His lips were blue. There was general abdominal tenderness with voluntary and slight involuntary spasm of the abdominal muscles. He was put to bed and heat applied to the abdomen. When I saw him somewhat later he had fallen asleep, but when awakened became very restless and complained of thirst. There was marked abdominal spasm and tenderness fairly well localized over the liver. A diagnosis of probable rupture of the liver was made and he was prepared for immediate operation. Under ether an incision through the right rectus was made and a tear in the dome of the liver was found. There was much free blood in the abdominal cavity. The tear was two and one-half inches long and could be reached only by passing the whole hand to the wrist into the abdomen. An incision was made over one of the lower ribs and an inch and a half was resected subperiosteally. The diaphragm was stitched about this space as soon as the pleural cavity was opened. The diaphragm was then incised and the tear located and packed with gauze. The abdominal incision was sutured in layers. The boy was very sick for the first few days and ran a very irregular temperature not characteristic of any condition in particular, and there were various râles in the right chest. A considerable amount of bile leaked out through the packing and the stools were clay colored at first. By March 29, he was out of bed on a full diet and free from symptoms. The sinus was somewhat slow in closihg but the boy eventually made a perfect recovery.

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Edler: Arch. Klin. Chir., Bd. xxxiv, 1887.
Thöle-Danzig: Deut. Zeitschr. Chir., Oct., 1905.
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Bartels: Feber rupturen nach Kontusion.

REPORT OF THE MILK COMMISSION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.*

BY JOHN LOVETT MORSE, M.D., CHAIRMAN.

A COMMITTEE was appointed by the Suffolk District Medical Society at its meeting in October, 1905, to report upon the expediency of establishing a "Milk Commission" under the direction of the Suffolk District Medical Society. This committee reported in April, 1906, in part as follows:

"In the belief that in no other way can the question of pure, clean, sanitary milk be better promoted, and improvement in the rates of infant mortality be secured, your committee recommends the appointment of a commission, to consist of not more than five physicians, to be known as the 'Milk Commission of the Suffolk District Medical Society.'

"So far as your committee has been able to ascertain, it is customary in other cities for the applicant to pay to the several persons employed by the commission in making the veterinary, chemical and bacteriological examinations, a sum aggregating about $30, which sum it seems to your committee is sufficient to discourage, to some extent, those who might be inclined to go into the clean milk business, especially since in the event of a failure to comply in any one respect the sum is as good as lost. Moreover, for each subsequent examination, the expenditure of the same amount is required, and to those who know the difficulties of competing in the market with dirty milk, this sum is a considerable tax.

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[3] Revue de Chir., 1896.

* Reported at the meeting of the Suffolk District Medical Society, Oct. 27, 1906.

"In the event of the creation of a commission with the backing of the society, arrangements have been made which will obviate this disadvantage, gratuitous veterinary, chemical and bacteriological services having been offered."

The society then voted as follows:

"That it is the sense of the Suffolk District Medical Society that a Milk Commission should be established, to be known as the Milk Commission of the Suffolk District Medical Society.

"That the chairman be authorized and directed to appoint five physicians to serve as such commission.

"The members of such commission shall serve without compensation; they shall make such rules and regulations concerning certification as in their discretion they may deem proper; they shall fill any vacancies that may occur in their number; they shall make such arrangements to secure such competent gratuitous veterinary, chemical and bacteriological service as may be available; and they shall submit annually a report of their doings for the preceding year."

This committee was appointed July 5, 1906, and consists of Dr. J. L. Morse, chairman, Dr. E. P. Joslin, Dr. E. A. Locke, Dr. F. H. Slack and Dr. Wilder Tileston, secretary.

Your commission decided that for the present, at least, their work should be limited to the encouragement of the production of a clean, constant milk and to the certification of such milk, if produced. In this way the consumer can be assured of the purity of the milk and can know where to get it. The committee felt that they should place more stress on the product than on the methods of production, believing that if the product is up to their standard, the methods of production must be satisfactory. They have accordingly drawn up the following requirements which are to be submitted to various milk producers within the next week or two. Several producers have already stated that they will try to produce milk satisfactory to the commission.

Requirements for Certified Milk.

A. The Milk. — The milk taken from the delivery-wagon shall fulfill the following conditions:

1. It shall be free from pus and pathogenic organisms, and contain not more than 10,000 bacteria to the cubic centimeter.
2. The action shall be neutral or slightly acid.
3. The milk shall contain not less than 3 nor more than 4% of proteids, not less than 4 nor more than 5% of sugar, and not less than 3.5 nor more than 4.5% of fat. Producers furnishing a milk which fulfills the other requirements of the commission, but with a higher fat content than the above, may also have their milk certified, as containing more than 4.5% of fat.
4. The milk shall be free from preservatives, coloring matters, and other contaminations, and it shall not have been subjected to the action of heat.
5. The milk shall be cooled to a temperature of 45° F. within one hour of the time of milking, and shall be kept at this temperature up to the time of delivery; it shall not have been frozen.
6. The milk shall be delivered in glass bottles, sealed in a manner satisfactory to the commission.

B. The Dairy. — The barn where the cows are kept, the dairy, and the surroundings shall be in a clean and sanitary condition, satisfactory to the veterinarian of the commission.

The cows shall be healthy, and free from tuberculosis, as shown by the tuberculin test. This test shall be applied at or shortly before admission to the herd, and at least once each year thereafter, in a manner and by a person satisfactory to the commission.

The employees shall be healthy and cleanly in their persons and habits. They shall not suffer from, or have been recently exposed to, any infectious disease.

C. Inspection. — The milk from each dairy certified by the commission shall be examined at least once each month, both bacteriologically and chemically; samples for examination shall be taken from the delivery-wagons by an agent of the commission, without previous notice to the proprietors.

In case examination shows that the milk does not fulfill the conditions set by the commission, the dairy may have, at the discretion of the commission, a re-examination made within a short time.

Each dairy furnishing certified milk shall be inspected at least once a month by a veterinarian of the commission. The health of the employees of the dairy shall be certified to, at least once a month, by a physician appointed by the commission.

The commission reserves the right to change these requirements at its discretion.

D. Certification. — If both the dairy and the milk it produces fulfill the foregoing requirements, a certificate will be issued to the proprietor of said dairy, good for the period of one month, said certificate to read as follows:

CERTIFICATE OF THE MILK COMMISSION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

[SEAL] Date,

The Milk Commission of the Suffolk District Medical Society hereby certifies that the dairy of.................................... is now fulfilling all the requirements of the commission, both as to the methods employed and the quality of the milk.

This certificate is good for only one month from the above date, when a new certificate will be issued, if the conditions are still satisfactory to the commission.

(Signed by the commission)

Each bottle of milk shall be accompanied by a certificate slip or label, to serve as a guarantee to the consumer; said certificate slip or label shall read as follows:

[SEAL] Date,

The Milk Commission of the Suffolk District Medical Society hereby certifies that the dairy of................................ is now fulfilling all the requirements of the commission, both as to the methods employed and the quality of the milk.

This certificate is good for only one month from the above date, when a new certificate will be issued, if the conditions are still satisfactory to the commission.

This milk contains 4% of fat, or,

This milk contains more than 4.5% of fat.

Notice the date.

Through the courtesy of various gentlemen arrangements have been made, as directed by the society, for the gratuitous examination of the farms and milk. Unfortunately, however, there are other items of expense in connection with the work: for printing, postage, an agent for collecting the milk and a suitable box for collecting it in. The commission was appointed to do certain work and was also directed to make no charge for the work. The commission is glad to give its services but does not, however, feel called upon to put its hand in its pocket to pay for printing, postage and an agent. It therefore asks for an appropriation of $150 for the ensuing year, $50 to pay for printing and postage, and $100 for the box and agent.

The report of the commission was accepted and an appropriation of $150 voted.

Massachusetts General Hospital.

CLINICAL MEETING OF THE STAFF, NOV. 9, 1906.

A CASE OF ACUTE OSTEOMYELITIS OF THE DIAPHYSIS OF THE HUMERUS. DRAINAGE. REMOVAL OF THE SHAFT AFTER TEN WEEKS. REPRODUCTION OF ENTIRE SHAFT. PRELIMINARY REPORT AT THE TWENTY-FIRST WEEK.

BY CHARLES L. SCUDDER, M.D.

I wish to make a preliminary report of a case of acute osteomyelitis of the upper end of the humerus in a girl of thirteen. The disease was at first localized in the upper end of the shaft of the humerus but despite thorough drainage of the soft parts and bone, extended throughout the whole shaft.

The first drainage operation was done two weeks after the initial symptoms. Eight weeks subsequently, having observed by the x-ray that the periosteum was proliferating satisfactorily, the entire shaft of the humerus was removed leaving the gutter of periosteum intact. The periosteal surfaces were approximated by interrupted catgut sutures in order that a better new humerus might develop, from the center of the new shaft outward to the periphery. A series of x-rays was shown demonstrating the increase in new bone formation from week to week up to the twenty-first week following the first drainage operation.

At present at the twenty-first week the entire shaft of the humerus has been reproduced, the upper arm is firm and strong, there is slight motion at the shoulder joint and very slight motion at the elbow joint. A portion of the lower epiphysis of the humerus was involved in the disease; the upper epiphysis of the humerus was of necessity removed.

Emphasis should be laid upon the importance, in the treatment of acute osteomyelitis of the long bones, of securing early and efficient drainage of the bone as well as of the soft parts, if the disease is found to be permanently localized; the avoidance of the destruction of the endosteum, that it may assist in the process of repair, if the disease involves the greater part of the shaft of the bone, as in the case here recorded; the removal of the sequestrum at the opportune moment so that the proliferating periosteum may most advantageously restore the shaft of the bone.

Attention should be directed to the valuable paper of Dr. E. H. Nichols, of Boston, in which the scientific basis for the above procedures has been laid down. A later complete report of this case will be made.

A CASE OF ARTHROPLASTY OF THE ELBOW BY THE MURPHY METHOD. REPORT OF THE CASE ONE YEAR AND FOUR MONTHS FOLLOWING OPERATION.

BY CHARLES L. SCUDDER, M.D.

I show a patient illustrating the result of an arthroplasty upon the elbow joint for partial ankylosis following a fracture of the olecranon. The steps in this operation were as follows: (1) A long posterior incision. (2) Section of the olecranon; retraction of the olecranon with triceps tendon attached. (3) Exposure of joint surfaces, clearing the joint of synovial membrane and adventitious bits of new bone and stripped up periosteum. (4) The taking of a flap from the posterior surface of the upper arm which is made up of the fascia and subcutaneous fat tissue with pedicle just above the elbow joint. (5) The placing of this thin fat-fascial flap within the joint so as to cover all bony surfaces. (6) Closure of the parts by layer sutures, without drainage. (7) Immobilization at a right angle.

The patient has, one year and four months after the operation, 105° of motion. He is able to flex the elbow beyond a right angle and to extend almost 60° from a right angle. The arm is as strong and practically as useful as the uninjured arm.

A brief statement was made of the various procedures adopted by different surgeons in the treatment of ankylosis of joints. Especial reference was made to Dr. John Murphy's experimental and practical work with the method of arthroplasty employed in the case here reported. Murphy has placed upon a more scientific basis this particular form of arthroplasty. A later report of this case will be made.

SPASTIC PARAPLEGIA OF EXTREME DEGREE, GREAT IMPROVEMENT IN LOCOMOTION UNDER TREATMENT.

BY HENRY C. BALDWIN, M.D.

J. H. F., forty years, single.

The patient has had scoliosis of the spine from childhood, to an extreme degree, in consequence of rickets. His general health was good, and he was active up to 1901. He then suddenly experienced an odd feeling in his legs. When he lifted them up they felt very light, and when he put them down he was not sure when they had reached the floor. This condition continued to grow worse for a couple of months, when he was obliged to go to bed. At this time there was complete paralysis of both legs, and almost complete loss of sensation. There was paralysis of the sphincters of the bladder and rectum. About a month later he began to be troubled with jumping of both legs, and this condition increased in frequency and severity. The legs became rigid and were crossed part of the time.

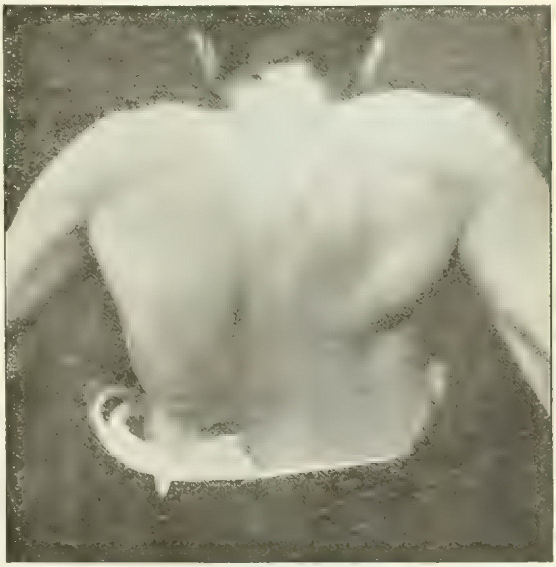


Fig. 1. — Shows the extreme degree of scoliosis.

The patient was brought to see me in November, 1904. He had been confined to the bed during the three years and was helpless. Physical examination showed normal pupils, well developed arms, and the condition of the back above described. Both legs were rigid and crossed. At times the legs would jerk upwards. The legs were so tightly pressed together that if the hand were caught between the knees in consequence of the spasmodic jumping of the legs, the pressure was extremely painful. It was impossible to separate the legs except by the exercise of great strength. There was ankle clonus and Babinski in both legs. Sensation was normal. The patient had recovered partial control of the bladder and rectum.

On account of the extreme curvature of the spine an x-ray was taken to see if there were any indications of pressure on the cord. The x-ray showed normal canal. He was seen at this time in consultation by Dr. Goldthwait, who found nothing orthopedic as the cause of the existing condition.

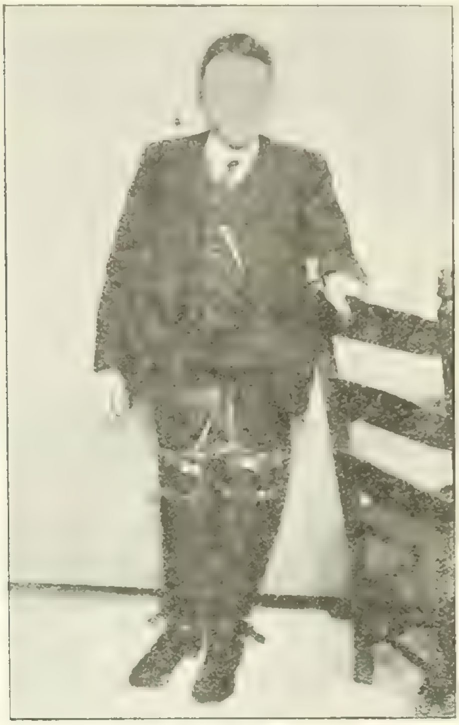


Fig. 2. — Shows patient wearing braces standing with aid of chair.

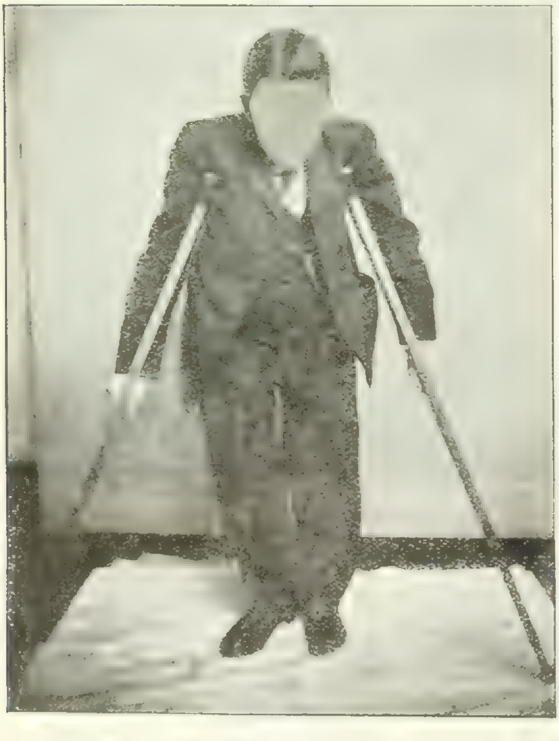


Fig. 3. — Shows patient without braces standing with aid of crutches.

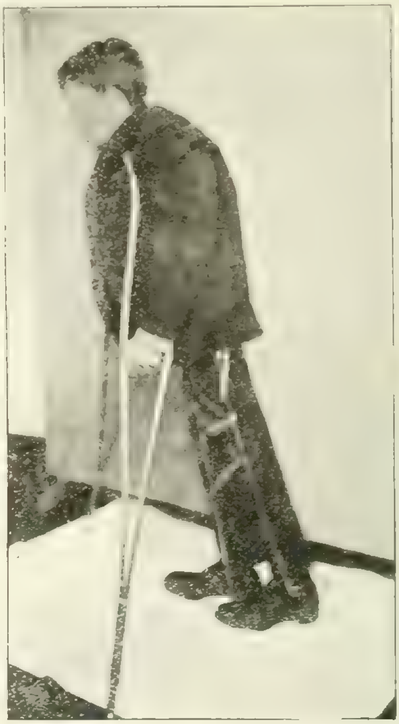


Fig. 4. — Shows patient walking.

The patient was so anxious to get better that he was told that, if he were willing to work at what seemed an almost hopeless task, there was a possibility of improvement. The fact that there were these involuntary jumpings of the legs showed that some fibers of the cord still remained. Over the fibers that were still intact he had no voluntary control, and the problem that was before him was to educate those fibers and make them do not only their own work but the work of the fibers that had been destroyed. At this time he could not make voluntary motions of his legs.

He was put to work at creeping on the floor. The nurses were instructed to separate the legs mechanically several times daily in the hope that regular systematic stretching of the adductor muscles would lessen the spasm. From this simple beginning, by steady perseverance and work, the patient gradually learned to use his legs in creeping and the spasm of the muscles was somewhat relaxed. He was then given crutches and with great effort taught to walk with them. At this time the legs were kept apart when he was at rest by the simple expedient of strapping them to the legs of his chair. He gradually learned to walk so that he could go alone about the room, and from being absolutely helpless was partially independent. The control of his bladder and rectum was nearly regained, although he was not able to wait for any length of time when there was a desire to empty his bladder or bowels. In February of this year he had made so much progress that it seemed best to see if the spasms of the muscles could not be relieved by operative means. His walking was difficult because of the tendency of the legs to cross, so that he would have to extricate one leg from behind the other with each step. As the patient himself aptly described it, he was facing south, and his legs were going east. Dr. Goldthwait divided the adductor muscles and fitted calipers in February, and this has added greatly to his ease in locomotion. During this summer he has walked short distances alone, has learned to go up and down stairs by himself, and on one occasion walked to the street cars and went to Charlestown alone.

This past month he has had division of the tendon Achilles on each side to relieve the contraction of the calf muscles.

As a matter of routine the patient has been taking iodide of potash at various times, although there is no history of any kind to suggest the need of this drug.

Though he may seem to be in a helpless condition to-day compared with his absolutely helpless condition two years ago, the improvement is marked.

CASE OF TUMOR OF THE SPINAL CORD CORRECTLY DIAGNOSTICATED; SUCCESSFULLY OPERATED ON; PRESENT CONDITION.

BY HENRY C. BALDWIN, M.D.

Just a year ago this patient was successfully operated on by Dr. Charles L. Scudder for tumor of the spinal cord. The growth was a fibrosarcoma, and grew from the side of the fifth cervical vertebra, being the size of a peach stone, and flattening and compressing the cord anteriorly. At that time the patient was absolutely helpless, with both legs rigid and flexed, so that the heels pressed against the buttocks. She had absolute loss of sensation below the umbilicus, and paralysis of the sphincters of both the bladder and rectum.

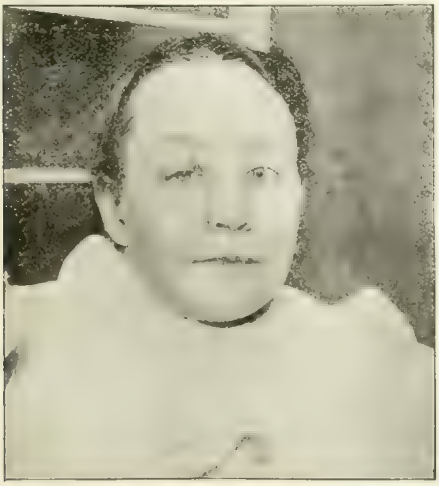


Fig. 1. — Patient at time of operation, Nov. 7, 1905. Shows narrowing of right palpebral fissure and contraction of right pupil due to irritation in the region of the first dorsal nerve due to pressure of the tumor. This has now nearly disappeared.

Sensation returned within a week following the operation, and control of the sphincters of the bladder and rectum in about two months. She began to move the toes of one leg in about six weeks, and gradually recovered some power of motion in both legs. When I showed her at the clinical meeting six months ago, she could straighten out the left leg and partially extend the right leg. She was sent into the hospital in June for two reasons: First, to overcome the contraction of the flexor muscles of the legs by the use of the Zander apparatus, and by the use of Zander exercises and by education to get the patient to walk again; secondly, for the removal of the two tumors in the supraclavicular regions.

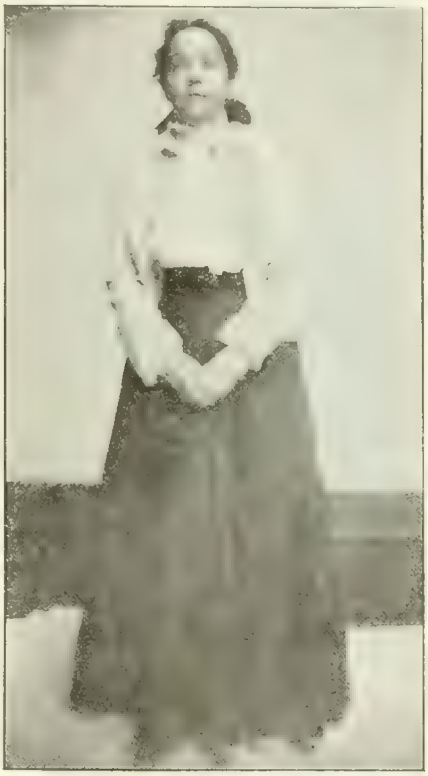


Fig. 2. — Nov. 9, 1906. Shows patient standing one year after operation.

The tumors were successfully removed by Dr. Scudder, and were myxo-fibromata.

By the aid of the Zander apparatus the patient had the flexor muscles of the legs stretched by passive exercises, and in time was able to use all the muscles of her legs. She learned to walk first with crutches, and now can walk alone without the aid of crutches or cane.

There is evidence of some degenerative changes in the cord in consequence of the pressure upon it before the operation, but the present state of the patient is far beyond what was expected when the condition of the cord was discovered at the time of the operation.

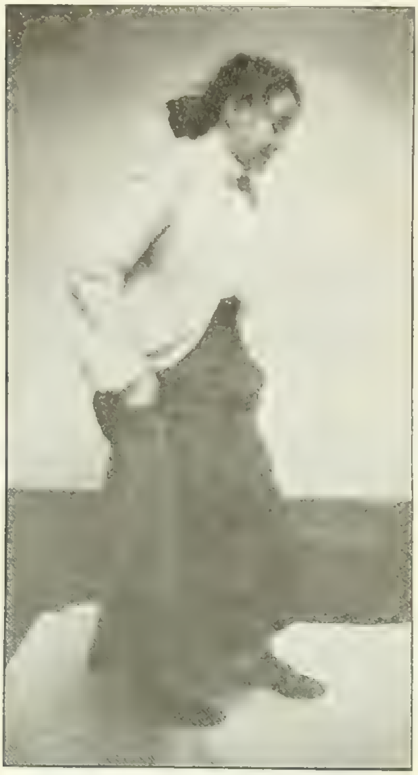


Fig. 3. — Nov. 9, 1906. Shows patient walking.

REPORT OF SURGICAL PROCEDURES.

BY CHARLES L. SCUDDER, M.D.

In this case of spinal tumor an exploratory laminectomy was done Sept. 19, 1905. It was believed that there was a tumor in the high dorsal region. The removal of the spinous process and laminæ of the fourth, fifth and sixth dorsal vertebræ revealed nothing abnormal. The dura was opened and nothing unusual was discovered. The dura was then sutured and the wound in the soft parts was closed by layer sutures. Care was taken to close the deep fascia securely over the wound left by the removal of the laminæ of the vertebræ. No drainage was used either of the canal or soft parts.

Nov. 7, 1905, a second exploratory laminectomy was done. This time the laminæ of the fourth, fifth and sixth cervical vertebræ were removed. The technique employed in both of these operations was briefly as follows:

The patient rested prone, the chest slightly elevated upon pillows, the head and neck extending beyond the table, the head resting upon an iron frame attached to the end of the table; a long and deep incision was made from the third to the sixth spine, thoroughly exposing with a few strokes of the knife both sides of the spinous processes. Bleeding was checked efficiently by packing the extensive wound with gauze. The bases of the spinous processes, laminæ and the bases of the transverse processes forming the bony floor of the wound were cleared of all muscular attachments most readily by the use of an osteotome or chisel as a lever against the spinous processes, scraping from the base toward the articular processes (Bickham). While one side was thus cleared the opposite side was held packed with gauze.

The spinous processes were removed by bone forceps. The laminæ were divided by a Doyen saw and cutting forceps. The saw should be held slightly obliquely pointing toward the mid-line so as to make the section at right angles with the laminæ. In order to avoid incising the articular processes the saw section should be started very close to the base of the spinous processes, within one quarter inch.

Upon partially dividing the laminæ upon each side the section was completed by the use of bone forceps. These forceps (made by Ford & Co., of New York), devised by Munro, of Boston, are the proper size, strength and shape for the most successful section of the laminæ. Rongeur forceps assisted in completing the exposure of the dura of the cord.

In the present case there was but little bleeding upon opening the spinal canal. This was readily checked by gauze pressure. A small tumor the size of a peach stone was seen lying to the right of the cord and laterally at the level of the fifth cervical vertebra. The cord was held to the left and the tumor removed by blunt dissection. It evidently extended beyond the vertebra laterally into the neck through a tiny opening. At its exit from the canal it was divided. The dura was sutured. The canal was drained by a small rubber tissue wick which was removed in three days. The wound in the soft parts was closed by layer sutures.

The head, neck and shoulders were supported by a plaster of Paris posterior dressing. Recovery from the operation was uneventful.

June 30, 1906, and Sept. 6, 1906, two tumors were removed from the sides of the neck. These tumors had existed some time. Each was the size of a butternut, rounded, slightly lobulated, smooth, elastic and painless. They were situated in the subclavian triangles.

They were found to be deeply seated within the cords of the brachial plexus. The tumor on the left side evidently extended up to the level of the fifth cervical vertebra.

Each tumor was encapsulated and was removed with some difficulty from its deep and intimate connection with the large nerve trunks of the brachial plexus.

These operation wounds healed satisfactorily. Following the removal of these tumors of the brachial plexuses the patient spoke of a little tingling sensation in one hand. This is explained by the manipulation of the nerves in enucleating the growth. This tingling disappeared in a few days.

The gross appearances of the two tumors were alike. Appended is the pathological report:

PATHOLOGICAL REPORT OF TUMOR OF NECK, REMOVED JUNE 30, 1906.

The specimen consisted of a rounded, irregular tumor 4 cm. in greatest diameter. This was encapsulated and fluctuant. On section it was myxomatous and of a grayish color. The center was occupied by a brownish cystic cavity.

Microscopic examination showed myxomatous fibrous tissue. The cells in most cases were long and oval with small nuclei and indefinite cytoplasm. In other portions the cells were closely packed together. In one section a few nuclei were much larger than the others and somewhat vesicular in character. Diagnosis: Myxofibroma. (Signed) C. C. Simmons, M.D.

A CASE OF MONOPLEGIA AND APHONIA OF TWENTY YEARS' DURATION. FINAL REPORT.

BY HENRY C. BALDWIN, M.D.

When this patient was first seen three years ago she was unable to make the slightest movement of any muscles of the right leg, and had made none for nineteen years. She was not able to speak, but had whispered for all these years. She wore a brace on her back day and night. When she was shown at the clinical meeting a year and a half ago her talking center had been re-established, and she had learned to walk. Since that time there has been continuous improvement in her condition, until now she is completely recovered. The past summer she spent in the country where she was able to climb an apple tree. Her steadiness of nerve is shown by her throwing a stone and pinning down a rattlesnake before running for help. She also climbed a difficult hill in New Hampshire for a view, which meant an excursion of over three miles on foot.

FRACTURE OF THE BASE OF THE SKULL; MENINGITIS, OPERATION, RECOVERY.

BY J. G. MUMFORD, M.D., AND H. C. BALDWIN, M.D.

The patient of whom we shall make a brief report is not here to-night, but we feel that a statement of his case may be encouraging and instructive.

Dr. Mumford: On the 8th of September last the man was brought to the hospital by the police with the story that he had been picked up unconscious on the sidewalk. He is a vigorous man of fifty. There was blood oozing freely from his nose and left ear. From the examination and subsequent history I am confident that he was suffering from fracture of the middle fossa. No damage to the calvarium was apparent; there was no paralysis or abnormality of the reflexes; the patient moaned continuously and moved about his arms and legs. Within two days he became conscious, but was sleepy and morose; he was reasonably intelligent. By the end of a week it was evident that a progressive inflammation of the meninges was present. There was some fever, with a rising pulse, occasional delirium, increasing activity and headache; and at this time an examination of the left ear showed a perforation of the drum. Two weeks after the accident his condition remained about the same, except that he was weaker. Dr. H. C. Baldwin saw him with me at that time, and agreed that a septic meningitis was present. We decided to open the skull, seek for a possible abscess and establish drainage. In this case also I turned back a large bone-flap, going in over the left motor area, mainly because it seemed probable that the left hemisphere especially was affected, by extension from the left-sided base fracture, though there was no special evidence of motor involvement. At the time of the operation the patient was in bad condition with a rapid feeble pulse, a low irregular fever and muttering delirium. On exposing the dura it was found to be thickened and injected, bulging strongly against the sides of the opening in the bone. I turned back a large dural flap, when the subdural space poured out a cloudy serum and disclosed a deeply injected pia. The brain was everywhere markedly edematous, and pitted deeply under the finger like a rotten sponge. I carried the operation no further as there was no indication of an abscess near the surface. I removed the bone flap and dura and replaced the flap of soft parts, after providing abundant rubber drainage. For two weeks after the operation the patient showed little change except that his pulse improved and the temperature gradually became normal. For three weeks the wound discharged an abundant sero-purulent fluid. The patient's mind continued cloudy though he could be roused to answer simple questions, and he was restless and irritable. Four weeks after the operation the skin flap was bulging markedly, but this bulging gradually has subsided until to-day there is no evidence of cerebral hernia. The patient is now in fair physical condition and able to go about, though his mind is still weak. The mental condition is improving, however, and we feel reasonably confident that he will recover completely under treatment at the Boston Insane Hospital, where he was sent last week.

Dr. Baldwin: Sept. 11, 1906, I was asked to see the patient by Dr. Mumford as a matter of routine, and to pass upon the question as to whether there was a fracture of the base of the skull. The pupils were equal and reacted normally. There were no facial paralyses or paralyses of arms or legs. The reflexes were all normal. Mentally he was clear. In order to determine absolutely the question of fracture at the base, it was asked that the left ear be examined for rupture of the drum. Sept. 12 Dr. H. L. Morse reported that the left canal was filled with blood clot, the bony canal was very much narrowed and the drum membrane showed recent perforation.

Sept. 22 I saw him again in consultation, the patient having developed fever and mental symptoms. The pupils were not remarkable, the knee jerks and Achilles were normal. There was a question of Babinski on the left side, but no positive sign. Kernig's symptom was present. There was rigidity of the muscles of the neck. There were no facial paralyses and no paresis of arms or legs. The patient could be roused with difficulty, was partially cyanotic and presented a moribund appearance.

The diagnosis was made of septic meningitis with possible abscess in the temporal or occipital lobe on the left side, infection being through the crack in the ear. Immediate operation was urged, and was done by Dr. Mumford.

There was inflammation of the meninges and an edematous condition of the brain: there was no indication of any abscess.

Careful examination the day following the operation showed no weakness of the right face, arm or leg, and no aphasic disturbance.

The patient has recovered physically. He has been delirious and confused mentally ever since the elevation of temperature, which occurred before the operation. He has, however, moments when he is perfectly clear.

JACKSONIAN EPILEPSY DUE TO CYST OF THE BRAIN FOLLOWING INJURY. SUCCESSFUL OPERATION.

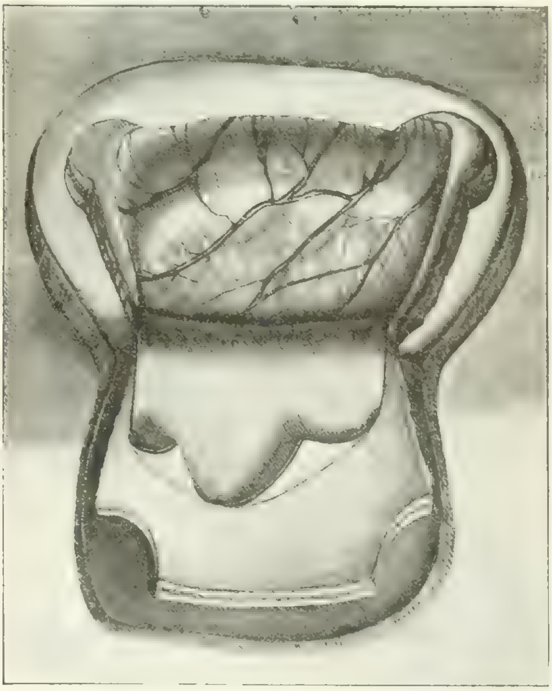
BY HENRY C. BALDWIN, M.D., AND J. G. MUMFORD, M.D.

Dr. Baldwin: P. R., twenty-one years; fireman on a locomotive; single.

May 11, 1906, the patient came to the accident room of the Massachusetts General Hospital for a burn of the face received by falling against the fire-box of his engine in an epileptiform attack. He was referred to the neurological department and gave the following history. Two years previous, while climbing on to his engine, he hit his head against a pulley. There was no scalp wound. He was dazed for a moment, but not unconscious. About fifteen minutes later his right arm began to twitch and he became unconscious. There was no general convulsion. Five weeks later he had a second attack, and between that date and the time he came to the hospital he had had half a dozen spells. Most of these spells were attacks of twitching of the right arm or hand; in one or two he had become unconscious.

He was recommended by Dr. Walton, to the hospital for operation but did not follow the advice.

June 25 he came again to the Out-Patient Department in my service with the history of having had several of these attacks in which he had not lost consciousness, but in which he had twitching of his right arm. The danger to him personally was pointed out, and he was sent into the house for observation and operation. He remained in the house about three weeks without having any attack, and left the hospital at his own request July 17. He was told to return immediately if he had any attack. Three days later he returned stating that he had had three attacks of twitching in his right hand in which he did not lose consciousness. The first of these attacks lasted several minutes, was followed by a second in about half an hour and the third in about two hours. He was sent into the house at once for operation. The diagnosis was Jacksonian epilepsy due either to the irritation of a spicule of bone or to a cyst following a hemorrhage at the time of the injury. Physical examination at this time showed normal reflexes and no loss of muscular strength anywhere.



Sketch of cyst, made at time of operation.

The operation was performed by Dr. Mumford July 28, and showed a cyst over the arm center on the left side.

The patient was examined carefully the day following the operation for paralyses, which so often follow exposure and operations on the cortex of the brain. There was no loss of muscular strength in the right face, arm or right leg, and all the reflexes were normal. The patient has made a perfect recovery and has had no return of these attacks up to the present time.

Dr. Mumford: A word about the technique of the operation: I prefer to use the head tourniquet for control of hemorrhage in the skin and to expose a large area of the cortex. Accordingly I turned back with the skin a bone flap nearly as large as my palm over the left parietal region, making a bevelled edge to prevent sinking in of the bone flap should I decide to replace the bone. The dura was found quite adherent to the calvarium and was somewhat torn in cutting out the bone, which was done with the DeVilbiss osteotome. Then the dura over the whole exposed area was turned back, disclosing a bluish-white, bulging area over the whole region, apparently a thin walled cyst beneath the pia. This cyst, if one may so call it, was too extensive and elusive for excision. I opened it in three or four places, however, and allowed the escape of a considerable amount of sero-hemorrhagic fluid. Before opening the cyst there was an appearance of marked intracranial tension, which subsided with the escape of the sero-hemorrhagic fluid. Surgeons have debated the further treatment of the wound in these cases, — whether to restore the parts with the bone flap, or to remove the bone for de compression of the brain. Kocher's reported cases of decompression encourage one, however, to remove the bone flap, and I did this in the case under discussion, restoring the flap of dura, however, and sewing up the skin-wound, with drainage.

For some days after the operation there was abundant oozing through the drainage openings, but in the course of two weeks the wound had healed completely. The patient was kept quietly in bed for four weeks, and a week later was discharged, there having been no positive evidence of further epileptic attacks during his stay in the hospital.

It is now fifteen weeks since the operation. The patient has continued in vigorous health, as you see him here to-night.

ENCHONDROMA OF THE HUMERUS.

BY J. G. MUMFORD, M.D.

I report this case as an example of gigantic tumor which was removed with comparative ease. The patient is a man of forty, who had suffered from a tumor growing on the outside of his shoulder for many years. For several years before he entered the hospital last August his upper arm had been useless from the weight of the mass, but he had kept at his work as a farmer, using his hand and forearm. I cut down on this tumor, after promising the patient that I would do what I could for him short of an amputation at the shoulder joint. I was able to expose the tumor completely through a large crescentic incision, and finally removed it all by a process of morcellation. The thinned deltoid muscle which covered it was saved so far as possible, but from the subsequent history it appears that he was never again able to raise his arm. The vessels and nerves of the arm, including the circumflex nerve and the musculo-spiral, were saved, and finally I reached the base of the tumor, finding it to be a broad antero-lateral band, about five inches long, extending downward from the surgical neck. I was able easily to cover in the wound and hoped for sound healing with the restoration of a fairly useful arm. The patient went home after about a month. The examination of the tumor at the time of its removal was made by Dr. Simmons, who reported it to be enchondroma without evidence of maligancy.

Two weeks ago, however, the patient returned to the hospital with his arm still useless and a small recurrence of the growth, showing as large as a lemon on the outside of the humerus. Meantime further study of the original tumor by Dr. Simmons and Dr. Whitney developed some doubt as to the harmless character of the mass. The patient was informed of the situation and in view of the uselessness of his arm and the possibility of his developing a malignant tumor, he requested an amputation at the shoulder joint, which was performed by Dr. Richardson last week. The man is now comfortably convalescent.

THE DIRECT INSPECTION AND TREATMENT OF THE ESOPHAGUS.

BY A. COOLIDGE, JR., M.D.

The esophagoscope is not a new instrument. In different forms it has been used for diagnosis and treatment for several decades, and consequently it might be supposed that if it had much practical value it would be less often looked upon as a toy. But examination and treatment under direct inspection are obviously often desirable if they can be done without danger. The necessary complication of special apparatus and technique has prevented its more general use, and hindered a general knowledge of its usefulness for certain cases. Essentially an esophagoscope is a hollow probang through which we can see. It should, therefore, be safer than a solid instrument, since we can see an obstruction before reaching it, and more accurate, as it affords an opportunity to work under direct inspection. The principal difficulty consists in getting a straight instrument by the angle between the pharynx and esophagus, that is, by the lower pharynx, the pyriform sinuses and the cricoid. This may be aided by the so-called autoscope of Kirstein or a modification of it which, on the principle of an elongated tongue depressor, makes it possible to see the arytenoid cartilages and pyriform sinus, and to pass the straight tube into the esophagus by sight. Or an elastic bougie may be threaded through the tube and the latter passed over the bougie. Once past the cricoid there is no difficulty in moving the instrument as far down the esophagus as necessary. The esophagus at rest is a closed tube, but after the esophagoscope has passed the cricoid, with each inspiration air is drawn through the instrument, the esophagus opens and permits us to see for a considerable distance below the end of the esophagoscope. It is often possible to pass a good-sized tube into the esophagus with cocaine anesthesia alone. In other cases ether is advisable or necessary. In the Throat Department we have found esophagoscopy useful in different classes of cases and we believe that it could be used successfully in some others. The removal of a foreign body is generally easy, the exceptional cases being those in which, on account of size or shape, it cannot be moved after being seized. We have a few times discovered the nature of a new growth involving the œsophagus, and removed pieces for microscopical examination. In one or two cases of cicatricial stenoses we have got very good views of at least the upper part of the stricture, and the position of the constricted passage. Essentials for satisfactory work are, in addition to a set of tubes of different caliber and length, proper illumination, instruments for sponging or sucking out secretion and special forceps; hooks and curettes for working through the tube.

THE EXAMINATION OF THE ESOPHAGUS BY ESOPHAGEAL TUBES.

BY D. H. P. MOSHER, M.D.

In preparing a paper which I read at the meeting of the American Medical Association last June I tabulated the cases of diseases of the esophagus which had been treated in this hospital for the last nineteen years. The majority of the cases were cases of stricture. Of these 16% were due to swallowing some corrosive fluid. Of the remaining cases of stricture the nature of the majority was not determined. Where the subsequent history of these could be traced most of them were found to be due to cancer. With our modern light bearing tubes such cases can be given a definite and scientific diagnosis. The old method of relying upon the findings of the bougie and the patient's general symptoms is inadequate. If such cases are examined with esophageal tubes an exact diagnosis can be made at once. If the stricture is due to cancer its precise location, the amount of infiltration and the nature of the cancer can be determined. Under the microscope are the slides of two cases of cancer of the esophagus which came to the Throat Department this past month where the diagnosis was made in this manner. Cocaine anesthesia is sufficient for many examinations. Ether, however, is surer, so that cases should be referred prepared for ether, if necessary. Cancer of the esophagus is a very hopeless disease, but not all cases are equally so. If the cancer is located in the upper part of the esophagus and does not infiltrate markedly, and the patient is reasonably young the case is hopeful. Therefore, a routine examination of strictures of the esophagus by means of esophageal tubes is the scientific method of determining to which group any case belongs. It goes without saying that an early examination is essential.

The students of the University of Pavia are organizing a festal celebration in honour of Professor Golgi, who shares with Prof. Ramon y Cajal, of Madrid, the Nobel Prize in Medicine. It is proposed to present him with a magnificently-illuminated address on parchment, and to give his name to a local philanthropic institution. - *British Medical Journal.*

Reports of Societies.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Twentieth Annual Meeting, Held in New York City, June 1 and 2, 1906.

Dr. F. Tilden Brown, of New York, in the Chair.

AN APPARENTLY HEALTHY CHILD BORN TO PARENTS BOTH OF WHOM WERE IN THE ACTIVE STAGE OF SYPHILIS.

Dr. Alfred C. Wood, of Philadelphia, reported this case. After giving statistics showing how few children born of syphilitic parents survived the first years of life said that Mrs. X., aged twenty-eight, housemaid, married three weeks, was placed in a hospital where Dr. Wood saw her daily. The right half of the upper lip was the seat of a syphilitic lesion and she had roseola and general glandular enlargement. After having been treated for nearly two months she left the hospital. She was directed to take three pills of proto-iodide of mercury, one-quarter grain each, three times daily, as that was all she could bear as had been demonstrated by frequent trials. It was impossible under all existing conditions to use inunctions. Her condition improved and in November the patient announced that she was pregnant. No change was made in the course of treatment. On two occasions she had a painful condition of the tibia which was soon relieved after a short course of iodides. The patient was delivered of a perfectly healthy male child on the first of May following. The child had never shown the slightest evidence of syphilis. It had nursed from the mother's breast and thrived perfectly in every way. As the child was over thirteen months old there seemed no likelihood that syphilitic manifestations would occur. Dr. Wood had seen the husband in January, 1905, and succeeded in eliciting from him the fact that two years before he had had a sore on the left side of his lower lip. The sore had been cauterized and no secondary manifestations were manifested so far as could be ascertained. His left hand was extremely swollen. An irregular, crater-like opening with necrotic edges and subjacent tissues, was situated at the middle of the dorsum. In May a painless swelling appeared on the back of the hand some time after his hand had been squeezed in the course of his work. This swelling gradually grew larger until in November, when it was incised. Nothing but blood was obtained. No benefit accrued from a second incision. Under the administration of ten grains of potassium iodide and one-sixteenth grain of bichloride of mercury three times daily, the lesion healed rapidly. An x-ray picture taken of the hand which showed that the proximal end of the middle metacarpal bone was the seat of a destructive process. The shaft approximated the wrist joint and about three quarters of an inch of the bone was missing.

Dr. L. Bolton Bangs, of New York, said that if they took it for granted that the lesion in the mouth was the initial one, the bone lesion followed rather early and it would be rather a precocious one. The father might not have been the original source of infection.

Dr. George K. Swinburne, of New York, condemned the use of the proto-iodide of mercury in the treatment of syphilis and said that he had discarded its use more than eight years ago.

Dr. John Van der Poel, of New York, said that his experience with the use of the proto-iodide coincided with that of Dr. Swinburne's.

Dr. Edwin C. Burnett, of St. Louis, said that periostitis often followed within two years after the initial lesion and that there was a clear history of syphilis reported in Dr. Wood's case. The fact, too, that the lesions cleared up under the administration of iodide of potassium was good evidence of its syphilitic nature. He also condemned the use of the proto-iodide of mercury in syphilis.

Dr. Alfred C. Wood, of Philadelphia, said that the proto-iodide of mercury was used to-day by some of the best syphilologers in the country.

THE ANTI-GONOCOCCUS SERUM OF ROGERS AND TERRY IN EPIDIDYMITIS.

Dr. George K. Swinburne, of New York, read this paper. He related the case of H. L., thirty-four years of age, whom he had been treating for two or three weeks for a primary attack of acute gonorrhea, when pain, redness and swelling occurred in the right knee and continued for three days. The patient, being very ill and unable to remain at home and in bed, was sent to Governeur Hospital. One week from that day he appeared entirely well so far as that knee was concerned. Rogers and Terry's anti-gonococcus serum had been used. While this serum had such a startling effect on the knee it had but little effect on the urethral trouble. It occurred to him that this serum would be valuable in cases of epididymitis if it were given early enough.

This serum was furnished in sealed glass tubes containing 2 cc. Some of the serum was obtained from rabbits and latterly from goats. Several who had tried the serum in gonorrheal rheumatism had not been favorably impressed and he had heard that it had proven a failure in epididymitis, but this was to be expected until we found under what conditions the most potent and valuable serum could be obtained and under what conditions we could look for failure or success. While using the serum he had not omitted any of the methods of treatment that had been found of use.

He had treated thirteen cases in all, only two of whom had disappeared. Seven of the cases were treated practically within twenty-four hours of the beginning of the epididymitis, four had had their trouble three or four days. Those having it a longer time were not treated with the serum, for he thought that to be effective it should be employed as early as possible. Three of the cases received two injections twenty-four and forty-eight hours apart and made an apparently complete recovery within a few days and then suffered a slight relapse which required another injection. If the second injection had been used earlier the relapse might have been avoided. Two of the cases received two injections, four received three, three received four and two received five injections. The injections were given subcutaneously in the back of the arm, the arm having been previously scrubbed with bichloride and alcohol. The needles and syringe were always boiled after use. Some of the cases presented no local reaction; in others there was considerable edema and some painful reaction, but no abscess or disagreeable reaction. In all the cases but two there was no pain after the fourth day, except in three which relapsed. In three there was no trace of the disease after complete recovery, no nodule left, and in two there was a long, rather soft mass left about the epididymis. Four of the cases were of a severe type from the start.

He was of the opinion that the serum had exerted a distinct effect in all the cases, that the course of the disease was modified to a marked degree and the duration distinctly shortened, and in several the quickness of recovery was remarkable. A detailed history of all the cases was given.

Dr. L. Bolton Bangs, of New York, said that those who had had much experience with gonorrheal epididymitis usually assured their patients that they would have pain for four days in bed. In his experience there was no class of patients who suffered so from epididymitis as the overworked lawyer. If what was claimed for this serum would follow its use, a great good would be accomplished.

Dr. Edward Martin, of Philadelphia, said that we should be careful in advocating goat's serum to the public, who always received with eagerness any claims of good from the injection of goat's serum. But if goat's serum opened the door of hope, it was then of value.

Dr. George K. Swinburne, of New York, said that the cases reported by him were ambulatory and the results were striking and he was convinced of its value in these cases.

Dr. Hugh H. Young, of Baltimore, hoped that they would find the serum efficacious, but he believed they gave it in too small a dosage and that if any good was to be accomplished it should be done with one fell swoop at the beginning in order to forestall more infection.

Dr. W. K. Otis believed, with Dr. Young, that larger doses should be employed.

Dr. Bransford Lewis, of St. Louis, thanked Dr. Swinburne for his suggestions and hoped that all he claimed for the treatment would materalize.

THE USE OF OINTMENTS IN THE URETHRA IN THE TREATMENT OF CHRONIC URETHRITIS. PRESENTATION OF A NEW INSTRUMENT FOR DEPOSITING OINTMENTS.

Dr. Hugh H. Young, of Baltimore, read this paper. He gave a brief summary of the suggestions made during the past fifty years as to the value of medicated ointments in the treatment of chronic urethritis. The difficulty of curing chronic gonorrhea was due to the extent of the pathological process, and the impossibility of reaching the depths of the disease with the ordinary medicinal solutions. The extensive cornification and thickening of the epithelium, the peri-urethral infiltration and general involvement of the glands of Littré were the lesions we had to combat in most cases of chronic urethritis of the anterior urethra. He quoted from Janet to show the great advantage of oleaginous excipients which adhered to the surface of the urethra, were molded into its folds and incorporated into the mucus and entered into intimate contact with the mucosa, thus permitting a prolonged action of the medicament, and protecting for a long time the urethral walls from the irritating action of the urine. Finger had also shown the great value of lanolin in urethritis. Dr. Young thought the desquamative action which could be obtained with ointments as was constantly made use of by the dermatologists in causing exfoliation, softening and disappearance of extensive epithelial thickenings was of great importance. The analogy between the later processes of epithelial change in the urethra produced by chronic gonorrhea and some of the lesions of eczema and other chronic skin lesions was very close, and a treatment resembling that employed by dermatologists was clearly appropriate. This was particularly true in those cases of leucoplasia of the urethra, which were not uncommon, and in which extensive areas, sometimes the entire urethra, were transformed from a soft membrane, composed microscopically of columnar epithelium, into a rough, thick hornified structure closely resembling the epidermis. For such case salicylic ointment was indicated. Casper and others had laid great stress upon the remarkable penetrating action of lanolin, and its power of incorporating aqueous secretions, and on this ground had given it precedence over cocoa butter and other greasy excipients. The tendency to malignant change made it very important to obtain a desquamation of the hornified epithelium and a return to the normal columnar type. An ordinary sound coated with ointment had the disadvantage of leaving most of the ointment on the outside of the meatus. The same objection applied to a lesser degree to the fluted sounds of Casper and the cupped sounds. The length of time they remained in the urethra, thirty minutes in order to insure melting of the ointment and the protracted technique required to secure proper coating of their interstices, were additional objections. The ointment syringe of Tommassoli had never proven a satisfactory instrument, and the objection urged against soluble bougies was the necessity of using hardening excipients of less satisfactory penetration and of sterilizing their exteriors before introduction. With these objections in view he had devised an ointment depositor which consisted of an outer tubular sheath of a little more than a half a circle extent, and a removable solid obturator, of corresponding size. This could be rotated in the outer sheath and when in the proper position furnished a large trough to be filled with ointment. When this had been filled the rotation was continued until it furnished a closed round instrument, with the ointment inside. In this position it was ready for insertion. After being introduced into the urethra, the obturator was rotated back to its first position and the ointment was thus pushed out of the instrument and into the urethra and might be found upon the flat surface of the obturator. The instrument was then withdrawn, the operator making pressure upon the glands and the meatus to prevent the escape of ointment. The simplicity of the instrument and the rapidity with which a large amount of sterile ointment of any desired composition could be introduced into the urethra had been very satisfactory. It could also be taken apart and cleaned with great ease. He now had the various ointments put up in collapsible tubes provided with a long, metal, nozzle-like attachment through which the ointment was squeezed and deposited in a long rope into the cavity of the instrument. These nozzles furnished a splendid opportunity for sterilizing the ointment. This was done by simply heating the nozzle with ointment inside over the Bunsen flame. The choice of ointment depended upon the character of the case. Where there was marked epithelial change, thickening and even leucoplasia, a salicylic ointment ½ to 1% was indicated. When the epithelium showed squamous epithelium a salicylic ointment would be of service. Iodide of potassium might be of value in these cases; in less severe cases a milder ointment, such as iodoform 10%, nitrate of silver 1% to 2% or boric acid 10%. In cases with considerable glandular involvement protargol 2% to 5%, bichloride of mercury 1 to 10,000 and formaldehyde 1 to 5,000 might be tried. One should have about ten such remedies put up separately in collapsible tubes, with nozzles attached. Dilatation, irrigation, instillation, prostatic massage, etc., were not to be excluded by the use of ointments as outlined above.

Dr. Charles H. Chetwood, of New York, said that the number of cases of chronic urethritis was so numerous that they were always glad to hear of some new resource, or the perfection of an old one. No doubt, many of such cases could be efficiently treated with ointments and bougies, but any increased facilities by clever apparatus was acceptable. The general objection to treatment by ointments was their uncertainty. The importance of retaining within the canal for an indefinite length of time these aqueous solutions was considered, and he had made a little clutch which fitted over the end of the penis which enabled the solution to remain in contact with the parts for two hours or longer, if necessary.

Dr. Bransford Lewis, of St. Louis, told of his experience with an ointment applicator constructed of hard rubber with a screw piston, etc., but his experience was entirely disappointing. He then had an apparatus made which produced a massaging effect with the application of the ointment and with better effects.

Dr. W. K. Otis said that what was reported by Dr. Young was first introduced by Dr. Halsted in 1884; he used this method with the idea that iodoform would kill the gonococcus. The objectionable feature was the odor of the iodoform.

Dr. Arthur T. Cabot, of Boston, thought that the ointment question had been abandoned long ago. He said he had used iodoform suppositories in certain cases, but he found better results followed the use of the aqueous solutions. The reason one could not get down into the folds of mucous membrane was due to faulty construction of the applicators. His own syringe had openings on all sides, thus applying the solution to better advantage along the urethral walls.

Dr. George K. Swinburne, of New York, said he had been using for a long time argyrol ointment in 10% mixture, made up with lanolin. He thought the instrument presented by Dr. Young a very ingenious one.

Dr. F. Tilden Brown, of New York, believed there were certain forms of urethral disease that were benefited markedly by medicaments in an ointment base. In former times he said he had resorted to every device mentioned by Dr. Young, all having been given trials. Finally, however, the introduction of argyrol, protargol and lanolin ointment enabled him to get all the good effects that had been described, form adhesion to the sound of the ointment, so that it would not be swept away when introduced through the meatus. Gomonol and lanolin had an anesthetic and therapeutic effect.

Dr. Hugh H. Young, of Baltimore, thought that we often found a transformation from the columnar type of epithelium into the cuboidal, flat and squamous, this being the progression usually seen in gonorrhea. In order to get a regeneration of the columnar type of cells, an ideal method was to cause a desqamation of the cells that were not normal on the surface, and so get down to bed-rock; if one could cause a scraping away of these neoplastic cells then one would get a far better chance to treat the lesion and with far better results.

THE SURGICAL TREATMENT OF STERILITY IN THE MALE.

Dr. Edward Martin, of Philadelphia, presented this paper. He said that permanent sterility had long been recognized as an occasional sequel of double epididymitis. This result of double inflammation of the epididymis was the exception rather than the rule. The severity of the inflammation was not an index to the probability of the sequel. The belief was generally accepted that the obliteration lay in the tail of the epididymis, and this received some confirmation from the fact that here was the seat of an obvious, palpable and permanent induration. It was with this belief fixed in mind that, in conjunction with Drs. Carnet, Levi and Pennington, he had conducted an experimental research having as its main end the determination of the question as to whether or not by short circuiting the vas and the head of the epididymis in cases of obliterating inflammation of the tail of this organ it might not be possible to provide a route by which the spermatozoa could escape. In the experiments dogs were used and the vasa of both sides were ligated and sectioned a short distance from their epididymal origin, the proximal end was then split and sutured into an opening made into the head of the epididymis. Subsequent ejaculations of those dogs contained a normal number of motile and seemingly healthy spermatozoa. It was proven that, at least in animals, such an anastomosis could be made, and that there seemed little tendency toward ultimate closure by cicatricial contraction. The question remaining to be settled was whether or not the spermatozoa thus short circuited were fertile since it was almost certain that they underwent some development in their progress through the epididymis.

The first case operated upon presented the usual history of repeated gonorrheas, double epididymitis and childless marriage, a wife treated by gynecologists and finally the discovery of azo-ospermia. The operation was done on the left side. Fourteen days later semen sent to the laboratory for examination showed the presence of actively motile spermatozoa, although not as plentiful as normal. The patient resumed marital relations eleven days after operation and two hundred and eighty-one days therefrom the wife was delivered of a child, whose resemblance to the father was striking. The spermatozoa again disappeared, but returned after a long course of prostatic massage. The wife remaining sterile he urged an operation on the other side. This was done, but on sectioning the head of the epididymis none of the milky globules customarily observed could be seen. There was no immediate return of spermatozoa, though since that time when he had been subjected to treatment for chronic posterior urethritis a moderate number of healthy spermatozoa would be found. He related the history of five other cases. In four of these cases conception did not follow, but in each of these there were other reasons why this result might not have followed. One case was lost sight of. The technique of the operation was extremely simple and had been done under local anesthesia and without giving pain, but he preferred ether. An incision one and one-half inches long was made with its center over the head of the epididymis in the back of the scrotum. The vas was freed from the cord usually without the application of a single hemostate. The epididymis was exposed throughout its entire length and by means of a pair of fine-tooth forceps a small fragment of it was snipped out. A slit was then made in the epididymis about one third of an inch in length. This was best done by means of a sharp-pointed tenotome and a probe-pointed knife, similar to that used in incisions into the lachrymal duct. Four sutures were then applied, either of silk or of fine wire, needles slightly curved and of the kind used by oculists were employed. The needle was passed from the outer to the inner surface of the epididymis thence from the inner through the outer surface of the vas, one stitch being placed at either end of the incision and one at each side. These sutures were all passed before being knotted down; they were then tied, the tunica vaginalis and the upper tunic of the cord were closed by buried catgut sutures, and the skin was approximated by continuous suture of either silk or catgut. The testicle was swathed in a sheet of sterile cotton and the whole kept in place by a properly fitting jock strap. Patients were allowed to be up on the following day and to resume sexual relations within a week. The operation was safe and simple and offered a promise to otherwise hopeless cases.

Dr. Orville Horlitz also operated with success upon a patient, whose wife had since become pregnant.

Dr. Arthur T. Cabot, of Boston, thanked Dr.

Martin for bringing such an interesting observation before them, showing the application of good common sense and good surgery.

Dr. Hugh H. Young, of Baltimore, told of a plan that aided him in diagnosis; when he made pressure upon the seminal vesicles, and the expressed fluid showed masses of mucin which came from them, he felt certain that he had patent ejaculatory ducts. He believed that Dr. Martin's operation was a great advance and should be more often employed.

ANOTHER URETHROSCOPE.

Dr. W. K. Otis, of New York, presented this instrument.

IMPRESSIONS OF GENITO-URINARY WORK IN BERLIN.

Dr. H. H. Morton, of New York, gave his impressions of two months spent in the clinics of Berlin. The work of the clinics was most painstaking and accurate. Cases were thoroughly studied, reports kept and statistics compiled. Snap diagnoses and slipshod treatment did not occur.

In all the clinics irrigations of the urethra were always used instrumentally. Irrigations were used either by hydrostatic pressure, or by the metal Ultzmann's catheter. Albargin, nitrate of silver and oxycyanate of mercury were practically the only three solutions used. Albargin (1-1000) was universally used to irrigate the urethra when gonococci were present. Nitrate of silver was used to treat post-gonorrheal lesions, to irrigate the bladder in cystitis and often after cystoscopy. The strength of the nitrate of silver solution was 1-4000 for the urethra and 1-1000 for the bladder. Oxycyanate of mercury in strength of 1-4000 was a more powerful antiseptic than bichloride of mercury and so unirritating that it might be used to fill the bladder for cystoscopy and also to irrigate infected wounds. Oxycyanate was also regarded as the typical solution to use in cases of urethral inflammation due to other organisms than the gonococcus.

A system of prophylaxis was first suggested by Frank. He injected the urethra of six men with gonorrhea pus and three of them received an instillation into the urethra of a 20% solution of protargol in glycerine immediately afterward. The men who were not injected developed gonorrhea, while the others escaped. In Wossidlo's clinic an abortive treatment of gonorrhea was practised with the result of curing 50% of the cases in six days. In order to be successful treatment must be begun in the first three days, before the discharge was active and while the microscope showed many epithelial cells and only a few gonococci, which were extracellular. This treatment consisted in irrigating the anterior urethra with a solution of albargin 1-1000 used with a large hand syringe once a day. The methodic treatment practiced by Wossidlo consisted in allowing the patient to use a hand injection of protargol or allbargin three times a day. Sandal-wood oil and kava-kava were given internally. In about three weeks the microscope showed absence of gonococci and abundant epithelial cells. When these findings occurred zinc sulphate with resorcin was used twice a day and a silver salt twice a day as an injection. The irrigating dilator was used once a week in addition to irrigations with nitrate of silver, which were used twice a week, until the patient was cured. The indications for permanganate were considered to be free purulent discharge without gonococci. The original Janet irrigation with permanganate of potash was no longer used. When in the course of an acute gonorrhea, post urethritis developed, all treatment was stopped, the patient put to bed and given sandal-wood oil and kava-kava in capsules, and when the inflammation became subacute bladder irrigations were made.

Chronic urethritis was, in general, treated by dilatation followed by irrigations of albargin, if gonococci were present, or nitrate of silver if merely an astringent was needed. In cases of mixed infection irrigations with oxycyanate of mercury or bichloride of mercury 1-10000 mixed with equal parts of permanganate of potassium 1-4000 were used. If the secretion was present the irrigating dilator was preferred. The dilatations were made once a week and irrigations twice a week and the patient used a hand syringe at home.

Chronic prostatitis was treated by massage and irrigation. When a point was reached where a case gave but a small quantity of pus in the expressed secretion dilatation of the prostatic urethra with a posterior irrigating dilator frequently caused the inflammation to disappear. Epididymitis was treated with the idea of preventing the formation of a hard plug in the epididymis. It was now believed that an ice-bag was contra-indicated and hot applications were always used. A 20% guaiacol ointment covered with cotton and waxed paper with a thermathore applied over all was a favorite treatment. This was changed three times a day. Gonorrheal rheumatism in the acute stages was treated by immobilizing the limb, using the Bier congestion apparatus each day, and the hot-air apparatus or baking two or three times a day.

In regard to stricture, the feeling in Germany was strongly in favor of conservative treatment by dilatation. An operation was not often resorted to except in cases of neglected or dense stricture.

The cystoscopic work in the bladder was of great interest to the visitor. He had seen Nitz remove some small villous growths from the bladder by means of his operating cystoscope. Casper was a strong advocate of double catheterization of the ureters at the same moment. He injected phloridzin previously and tested for sugar and urea, and compared the foregoing period of right and left union by cryoscopy, making a complete microscopical examination of the sediment. In cases of suspected tuberculosis of the kidneys, injection of guinea pigs with the centrifugated sediment of the twenty-four hour urine was also practised. Five or six weeks after, the pig was killed and examined for tuberculosis.

The surgery of the prostate was still under discussion as in this country.

In regard to the subject of chancroid and syphilis the pathogenic organism of chancroid was now universally accepted as Ducrey's bacillus. If seen early enough chancroid was destroyed by means of the Hollender hot-air apparatus, which had a selective action and destroyed only the diseased portion of the tissues. This was followed by curettage with sharp spoon. Iodoform was found to be the best antiseptic to use, nothing having been found as a satisfactory substitute.

The treatment of buboes by extirpation before suppuration had been abandoned; they were now covered by hot fomentations until soft, then opened by small puncture and injected by a 10% iodoform-glycerin emulsion. The results were excellent.

The routine treatment of a typical case of syphilis consisted in giving, during the first year, three courses of thirty or forty inunctions or injections. In the second year, two courses were given and in the third year, one course. Iodine of potash is only used when tertiary lesions are actually present.

Second Day, June 2, 1906.

ON THE TREATMENT OF PROSTATIC ENLARGEMENT.

Dr. James Pedersen, of New York, read this paper. He said that his purpose was to discuss what led up to prostatectomy and what away from it. The two important considerations were, When should surgical intervention be advised and which was the operation of choice in the case under treatment? As to the time for surgical intervention three teachings were recognized: (1) Immediately upon first retention. (2) As soon as catheter life had to be begun. (3) When catheter life failed. As to the operations of choice we had to consider: (1) Perineal prostatectomy. (2) Suprapubic prostatectomy. (3) Prostatectomy by means of either a bistoury applied through a perineal incision or Bottini's galvanocautery incisor. In his opinion it was not possible to say categorically when surgical intervention should be advised. We needed more detailed, descriptive and searching statistics on both the conservative and the radical sides. Recent statistics showed that the English and French advised the suprapubic operation; that the Germans were almost evenly divided, the slight preponderance being on the same side; that with us the apparent choice was the perineal; that the mortality abroad and at home practically agreed at about 9% for the perineal operation and at about 5% for the suprapubic, making about 7% for all cases. He agreed with recent writers who had entered a timely protest against excessive enthusiasm for operating and a just criticism was made of the lack of ante-operation details. In 238 mixed cases Whiteside found "absolutely good results in only 30%, a mortality in perineal prostatectomy of 20% in 36 cases reported by nine operators, of 8% in Murphy's 51 cases, of 5% in Young's 75 cases and of 3% in Goodfellow's 75 cases. He cited 5 cases as illustrative of points he wished to make.

Case I. Incipient prostatic enlargement illustrated the value of palliative measures in postponing indefinitely the necessity for radical operation. This patient, aged fifty-one, had been a hard manual laborer, and had suffered frequency of urination, slight hesitancy and initial pain for two years. The frequency rose to an hour and a half. From his symptoms it was evident that the quality of his urine had something to do with his symptoms. There was a general pruritis, apparently of lithemic origin, which was followed by improvement under medication. He had no venereal disease and his sexual life had been normal. Examination showed three ounces of residual and an enlargement of the prostate, the left lobe especially. Under irrigations and instillations of silver nitrate solution and digital message of the prostate, his frequency began to fall and the residual to decrease. He has steadily improved and is able to hold his urine three hours and he declares that he is comfortable.

Case II illustrated a class that undoubtedly had been hurried into an unwarranted operation. The case was typical. V. Q. J., aged sixty-three, had been in the habit of holding his urine for an hour or so over time for two years past. Within a few days frequency, some ardor, considerable tenesmus and incontinence on recumbency developed. The frequency was fifteen minutes day and night. His sexual life was extremely negative. Examination showed an over-extended bladder reaching almost to the umbilicus. His coffee was restricted and his fluid diet was replaced by solids, and uriseptin was used and a balsam added. He was told to remain in bed, which he refused to do. Within forty-eight hours an improvement was noted. Gradual relief of the over-distended bladder was begun. It was completed in twenty-four hours. The residual was four and one-half ounces. He was given strychnia in solution and uriseptin. He was taught to urinate in "editions" and seven weeks later the residual was only one and a half ounces, his diurnal intervals were two hours and there was no nocturnal urination. Two weeks later he could hold his urine four hours. The result in this case was very satisfactory considering the patient's temperment, environment and lack of vigor. To have operated in this case would have exposed the patient to unnecessary risk.

Case III illustrated a phase of catheter life that led to a change of advice: V. L., sixty years of age, who had been using a catheter for seven years and irrigating regularly. From time to time he had suffered attacks of prostatitis and exacerbations of chronic cystitis. Ten days before seeing him an unusually severe attack had developed with great frequency, some urgency and sharp tenesmus. He had had urethritis thirty years ago and syphilis two or three times. He had no coffee, alcoholic or tobacco habit. Examination showed the man in fair condition. He urinated in a feeble stream, had four ounces of residual urine, large prostate, full, boggy and symmetrically ovoid. There was no calculus. The membranous urethra was narrowed to 25 F. After gradual dilatations of the membranous urethra cystoscopy became possible. He remained under treatment eleven days. A year later he returned and it became clear after five days' treatment under observation that catheter life in his own hands had come to an end. Prostatectomy was, therefore, performed, although in the course of two weeks before he could enter the hospital the urethrocystitis cleared up considerably, and voluntary urination returned in part. Perineal prostatectomy was chosen, the intravesical outgrowth as estimated not being so large as to demand suprapubic operation. The patient made an uneventful recovery aside from slight febrile movement and a mild phlebitis in long standing varicose veins.

Case IV brought out one of the indications for suprapubic prostatectomy and was presented because of this and other interesting features. I. E., aged sixty-eight, came under observation last June. He had had galvano-cautery prostatectomy performed through a perineal incision three years ago, after catheter life. He had left the hospital unimproved, and from time to time had sudden attacks of retention which he had relieved by the use of the catheter. His constant subjective symptoms were great frequency, some urgency, marked tenesmus and exhaustion. The retention was due to spasm of the urethra, mainly, if not wholly. The bladder capacity was two ounces and calculus was detected. Further examination made lithopaxy necessary. As the calculi could not be dislodged a suprapubic cystotomy was performed. The enlargement of the prostate was much greater than suspected. Complete prostatectomy was performed. A perineal sinus was unavoidably caused which persisted in spite of every attention, leaking more or less continuously for four or five months. Incontinence persisted, obliging him to wear a urinal. Possibly this patient should have been classed among those who do better when a preliminary suprapubic cystotomy was performed to rest the bladder by drainage and allow the patient to recuperate before undergoing prostatectomy. Sexually he is as negative as before operation.

Case V illustrated the condition called prostatism. F. K. M., sixty-seven years of age, complained of diurnal frequency and having to urinate once during the night. Some form of urethral instrumentation had been given him for three times a week during six months about a year previously. No benefit had resulted. After three days' treatment for a gastro-intestinal disorder the urination had returned almost to normal and had so remained for several days. His sexual life had begun when he was seventeen and he had practised withdrawal regularly until he was forty-five. He was still vigorous sexually. He was an abstainer from alcohol and coffee and for the past thirty years from tobacco. Examination showed residual urine of one and one-half ounces. The microscope showed uric acid and calcium oxalate crystals in abundance. The prostate was small and firm, indicating interstitial changes. Under regulation of diet, supplemented by local treatment, the residual soon fell to half an ounce and the urinary intervals lengthened to an average of two hours. This patient had been under observation two years, during which time he had three slight and two sharper exacerbations. Retention had never been threatened. The exacerbations followed errors in diet. Through all the urine had kept its normal appearance. None of the exacerbations kept him from business. In his opinion this man was as near normal as a man of sixty-nine could expect to be and kept his prostatism under control by his diet, habits and mode of life. Bottini's operation had failed of universal application, but had a well defined though limited place in the surgery of the prostate. Granting that surgical intervention was demanded in the given case the indications for the Bottini operation were: Prostatic bars, Albarran's chronic hypertrophic prostatitis without median lobe enlargement of any extent, advanced carcinoma of the prostate, prostatic enlargement when positive contra-indications to prostatectomy existed. These contra-indications were those of any major operation. The procreative power, when made an imperative requirement, contra-indicated radical treatment. Old age alone was no contra-indication. The teaching that advised surgical intervention as soon as catheter life failed came nearest to being correct. He was not in favor of catheter life as opposed to prostatectomy, but urged conservatism as against radicalism. He favored discriminating intervention as against indiscriminate operating, finer distinctions in the field of indications and a rational application of all the known methods and means of treatment in such proportions as should gain the maximum result for each individual patient.

(*To be continued.*)

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Book Reviews.

Anatomy and Physiology for Nurses. By LeRoy Lewis, M.D., Surgeon to and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Mich. Illustrated. Pp. 317. Philadelphia and London: W. B. Saunders & Co. 1905.

The book is an elaboration of lectures which the author has delivered before the nurses of the Lewis Hospital in his native city. As we have had occasion frequently to say before, the usefulness and desirability of such a treatise for nurses seems questionable. Many facts, as, for example, the insertion and origin of small muscles, certainly can be of little use to the professional nurse, and so of other anatomical points discussed in the text. As a statement of certain established anatomical and physiological facts, however, the book is of the same usefulness as others of its class.

Manual of Anatomy, Systematic and Practical, Including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Glas., Professor of Anatomy in Anderson's College, Glasgow. Volume I. pp. 596. Illustrated. Chicago: W. T. Keener & Co. 1906.

The volume before us is the first of a manual of anatomy which has for its object the combination of practical with systematic anatomy, designed for students about to undertake examinations in the general subject. The book has been entirely written by the author and, therefore, is of value as an expression of personal study and research which many of our modern textbooks on this subject have ceased to be through multiplied authorship. The embryology of the organs and structures studied is taken up conjointly with the developed structure, a method which should appeal to the student. Colored drawings are used in the text, and the binding in flexible covers with thin pages permits of much economy both of space and weight. This first volume concerns itself with osteology and the anatomy of the upper and lower limbs.

The Operative Treatment of Prolapse and Retroversion of the Uterus. By J. Inglis Parsons, M.D., M.R.C.P., M.R.C.S. New York: William Wood & Co. 1906.

A review of this book published by John Bale, Sons & Danielsson, Ltd., 1906, was sent to the Journal Aug. 15, 1906, by W. L. Burrage. Book exactly the same except the covers and the name of the publishers.

The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery. Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume II. *General Surgery.* Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in Rush Medical College (in affiliation with the University of Chicago). Series 1906. Chicago: The Year Book Publishers, 40 Dearborn Street.

This Year Book is an excellent compendium of the important contributions that have been made to surgery during the preceding year. The subjects are considered in considerable detail and this is a distinct advantage, for in this manner a clear idea of the subject is obtained and one is not compelled to obtain one's information from head-lines. The book is much better illustrated than the average Year Book, and some of the illustrations are of value. The editorial comments of Dr. Murphy add greatly to the value of the book, for this gives a perspective to the various subjects that can only come from a man of ripe experience.

Eczema, a Consideration of Its Course, Diagnosis, and Treatment, Illustrating Many Points of Practical Importance. By Samuel Horton Brown, M.D., Assistant Dermatologist, Philadelphia Hospital, etc. Philadelphia: P. Blakiston's Son & Co. 1906.

This little book of one hundred pages was devised, its author states, with the hope that it would render the study of the disease more convenient than has been done by other writers. The book contains a large number of prescriptions, each, as a rule, made up of a number of ingredients, and given with a description of the various stages and types.

Leprosy and Fish Eating. By Jonathan Hutchinson. London: Archibald Constable & Co. 1906.

The well-known views of Jonathan Hutchinson on the etiology of leprosy are emphasized again in this book of 420 pages. Its object is to carry conviction to his readers that the fundamental cause of leprosy is the eating of fish in a state of decomposition. The book is not intended for medical men only, inasmuch as he thinks that thousands of our fellow creatures are incurring heavy penalties by the delay of the medical profession in accepting his theories. The book is a compilation, in great part of numerous papers written by the author, and embodies a large number of notes taken by him in various lands. It will be interesting to see what the effect of reading this book will be on the lay mind; certainly it will not be convincing to many men of scientific training.

The Practical Medicine Series, comprising ten volumes on the year's progress in Medicine and Surgery, under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume VII. *Pediatrics,* edited by Isaac A. Abt, M.D., Assistant Professor of Medicine (Pediatrics Department), Rush Medical College. *Orthopedic Surgery,* edited by John Ridlon, A.M., M.D., Professor of Orthopedic Surgery, Northwestern University Medical School, with the collaboration of Gilbert L. Bailey, M.D., Instructor in Orthopedic Surgery, College of Physicians and Surgeons. Series 1906. Pp. 267. Chicago: The Year Book Publishers, 40 Dearborn Street.

This volume is one of a series of ten, issued at about monthly intervals, the object being to cover the entire field of medicine and surgery during the year. Each volume is intended to cover the year prior to its publication on the subject of which it treats. This volume, received in October, contains, however few references in 1906, and none later than May, 1906. The articles reviewed are well chosen and intelligently abstracted. Some of the most important are given *in toto.* On the whole, the book presents a very fair picture of the work done in pediatrics during the year ending in May, 1906. It will prove useful to any one who wishes to look up quickly the more recent work in this line. We can recommend it for this purpose.

The Practitioner's Library. The Practice of Pediatrics in original contributions by American and English Authors. Edited by Walter Lester Carr, A.M., M.D., Consulting Physician to the French Hospital, New York; to the New York Eye and Ear Infirmary; Visiting Physician to the New York City Children's Hospitals and Schools; Member of the American Pediatric Society; Formerly editor of "Archives of Pediatrics." Illustrated with 199 engravings and 32 full-page plates. Pp. 1014. Philadelphia and New York: Lea Brothers & Co. 1906.

This is one of three companion volumes covering respectively, gynecology, obstetrics and pediatrics. Much space has been devoted to infant feeding, diseases of the alimentary tract and to contagious diseases, the object being to describe the conditions most intimately associated with disease in children and not those which are more common in adult life and found but rarely in childhood. That is, the line between pediatrics and general medicine has been pretty carefully drawn. Among the better known contributors are Drs. Abt, Jennings, Poynton, Southworth and Yale.

As is always the case in a work written by various authors, the standard of the various sections is uneven, some of them being extremely good and others hardly creditable to a third-year medical student. On the whole, however, the standard is pretty high. As is unavoidable in such a work, there is more or less unnecessary repetition and more or less disagreement among the various authors. The book is fairly well up to date. The illustrations are good. There was, however, no demand for another book in English on the diseases of children, the field being thoroughly covered by the latest editions of the present textbooks. Although this is a fairly satisfactory work, we see no reason why any one who has one of the standard textbooks should feel it necessary to add it to his library.

Practical Textbook of Midwifery for Nurses. By Robert Jardine, M.D. (Edin.), M.R.C.S. (Eng.), F.F.P.S. (Glasg.), F.R.S. (Edin.), Professor of Midwifery in St. Mungo's College, Glasgow; Senior Physician to the Glasgow Maternity Hospital, etc. Two hundred and seventy-six pages with forty-nine illustrations. Third edition. London: Henry Kimpton. Chicago: W. T. Keener & Co. 1906.

This small book is based on the lectures delivered to the nurses in the Glasgow Maternity Hospital. Some of the illustrations in this edition are from the author's book on Clinical Obstetrics recently reviewed in these columns.

The subject is treated concisely and well. The nurse and the medical student will find here set forth the chief facts of the art of midwifery in an accessible and easily understood form by a writer who has had a very large clinical experience.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 6, 1906.

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REPORT OF THE SURGEON-GENERAL OF THE ARMY.

THE medical aspects of the report of the Surgeon-General of the United States Army are always of interest, inasmuch as they describe the diseases incident to a large body of men, and, what is equally important, means of prevention of those diseases. As the possessions of the country have grown, the army naturally has been stationed in widely different portions of the world; for example, both this year and last troops were stationed in the Philippine Islands, Alaska, China and Hawaii. This does not include native troops, who likewise do service in Porto Rico and the Philippines. The army, including both white and colored troops, for the year 1905 numbered between fifty-five and sixty thousand men. Among this number there were 368 deaths from all causes, equivalent to 6.28 per thousand, a diminution over the number in the previous year. These and other statistics are regarded as very satisfactory, and indicate a steady and progressive improvement in the general health of the army.

The frequency of various diseases is of interest. Venereal diseases, as is usual, headed the list, and the conditions regarding this type of disorder are extremely unsatisfactory. Next in order were malarial fevers, which showed a slightly increased admission rate over the preceding year. The diarrheal affections showed a most decided improvement, but on the other hand alcoholism, next in order, gave an increase in admissions and deaths. As a cause of death tuberculosis led, pneumonia was second, typhoid fever third, and diarrheal diseases fourth. Among the deaths of the year it is noted that thirty-seven were from drowning; that there were thirty-one suicides and twenty homicides.

The report discusses the comparison between the figures which it submits and the data available among foreign armies. Although the figures are not, strictly speaking, comparable, owing to various methods of recruiting and of estimating army strength, nevertheless, the results may be regarded as to a certain extent significant. The highest admission rate for disease was obtained in the Dutch army, followed closely by the American army, and the lowest, about one fourth as many, in the Russian army. The death-rate was highest in the British army, next in the American army, whereas the mortality was lowest in the Prussian army. It is, however, pointed out that the average duration of each case of illness should be taken as a factor of importance in judging of relative healthfulness. By this standard the American army excelled all others, excepting the Dutch and Bavarian.

It is significant that there was a remarkable diminution in the number of admissions for typhoid fever during the year, but with a slightly increased death ratio. It is fair to assume that this improvement is due to increasingly stringent precautions against the disease. It is noted that the great majority of typhoid admissions were from the ranks of inexperienced soldiers under twenty-five years of age. Fifteen years ago it would have been hard to credit the statement that no case of yellow fever occurred during the year at any military post, and yet this was the fact. The measures taken to protect the troops were based wholly on the theory of the mosquito transmission of the disease. In New Orleans, for example, although the garrison of Jackson Barracks was in the midst of a highly infected portion of the city, the garrison was completely protected from infection. Tuberculosis, on the other hand, has shown a slight increase, but here again nearly one half the admissions were in soldiers serving their first enlistment, and nearly one fourth in those of less than one year's service. There has been a slight decrease in the cases of insanity. Apart from tuberculosis it is noted that in general the health of the colored troops is better than that of the white. The mortality from this disease, however, is more than three times as great among the negroes.

Naturally, certain stations interfere very much more with the health of the troops than others. For example, Alaska is the most healthful country in which American troops are serving, and this is followed by Hawaii. It is evident, therefore, that other conditions than mere temperature are at work.

The report contains many facts of interest and importance regarding the medical arm of the service which the limits of these remarks will not permit us to discuss. We commend the report to those interested and especially to those young men who are contemplating a medical career in the army.

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A CRISIS IN MEDICAL INSTRUCTION IN PARIS.

We have become somewhat accustomed to the difficulties of Russian university students in the assertion of their supposed rights and in their dealings with governmental authorities. It is, however, unusual for such disturbances to occur in the universities of other countries where the political situation is less strained and where custom has gradually established a temperate code of conduct. It is, therefore, rather surprising to learn that an uprising of the students against the authorities has recently occurred in the medical department of the University of Paris. It is announced that the Minister of Public Instruction has found it necessary to suspend medical lectures for a week until the situation which has developed can be adjusted. The dean of the medical faculty has apparently so far run counter to the student body in relation to certain matters over which he has jurisdiction, that the students have taken the matter into their own hands and have made it impossible for lectures to be given. The means they have taken have been the time-honored ones of noise and missiles of various character. The difficulty has arisen not from any petty antipathy to the dean or other professors, but rather as a systematic objection to the granting of certain degrees which it is claimed tend to minimize the value of the ordinary degree. Other grievances of a somewhat similar sort have also led to the demonstration which is apparently favored by other than the medical students so that the university appears to be on the verge of a student strike very similar to those common in Russia. The situation is of interest in that the difficulty between students and authorities turns upon matters of policy which the students think directly affect them. While one cannot approve the methods they have taken to express their discontent, it is, nevertheless, significant that they find sufficient cause for protest to institute a widespread revolt. The relation of the student body to the university authorities is always a matter of interest and at times of some delicacy. As yet in this country such friction has rarely been apparent in our larger universities. That it may occur, however, is shown by this experience through which the University of Paris is passing at the present time where under ordinary circumstances peace and harmony prevail.

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THE MEDICAL PROFESSION IN SAN FRANCISCO.

In another part of this issue we call attention to the action of a committee of the American Medical Association toward the provision of books and periodicals for the physicians and libraries of San Francisco. It is generally known that many of the personal effects of physicians were destroyed during the recent earthquake and subsequent, even more destructive, fire. To make up this loss, if in fact this can ever be completely done, will be the work of many years. In the meantime, the work of the physician must go on, possibly with even greater activity than if the disaster had not occurred, and it is equally necessary that he should be provided with the tools of his art lost during the destruction of the city. Shortly after the earthquake a request was sent abroad for a supply of necessary surgical instruments. This has now been followed by a similar request for books and periodical literature of all sorts relating to medical subjects. It is not expected that the very last edition of text-books will be sent, nor, we imagine, is it desired that very old books should be forwarded. There will, no doubt, be many not only willing but glad to forward books and periodicals of relatively recent date, and if the response to the request which which has been sent out be as generous as we imagine it will be, the libraries, both of physicians and of institutions, should be satisfactorily replenished. We beg to call the matter to the attention of our readers in the hope that some, at least, may see fit to join in the good work.

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MEDICAL NOTES.

A Motorman in Batter. — Our contemporary, the *New York Sun*, is responsible for the following Paris cablegram:

"A tram car to-day dashed into a wagon loaded with 67,000 eggs. The driver was thrown into the center of the load, where, in addition to having his legs broken, he was half drowned in the broken eggs."

Tablet in Honor of Dr. Reed. — A bronze tablet measuring three by four feet has been placed in position in the Kings County Hospital in Flatbush, in memory of the late Dr. Walter Reed, who was a former interne of the hospital. The tablet, which is the gift of the Alumni Association of the hospital, bears the following inscription: "Erected by the Association of Ex-Internes of the Kings County Hospital to the memory of Walter Reed, M.D., interne in this hospital, 1871; major and surgeon United States Army; chairman United States Yellow Fever Commission, 1900–1901. He robbed the pestilence of its terrors and caused the cities of the Southland to sit in peace within their gates." — *Medical Record.*

A Miscarriage of the Pure Food Law. — What is the use of a pure food law which prevents you from getting your pure food?

This query presented itself after a fruitless five weeks' struggle to get some choice Virginia hams put up by a raiser of high character and enviable reputation. There were no pure food labels for him and hence no pure hams from him for us. Whether we should be more fortunate in dealing with Chicago or Cincinnati we do not know. But a paternal government which makes it part of its business to protect us from bad hams should so arrange its operations as not to prevent our getting good ones. Otherwise the gratitude for the beneficent paternalism will be checked.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Dec. 5, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 59, scarlatina 30, typhoid fever 12, measles 30, tuberculosis 38, smallpox 0.

The death-rate of the reported deaths for the week ending Dec. 5, 1906, was 18.36.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Dec. 1, 1906, was 167, against 181 the corresponding week of last year, showing a decrease of 14 deaths and making the death-rate for the week 14.46. Of this number 85 were males and 82 were females; 167 were white and 0 colored; 92 were born in the United States, 69 in foreign countries and 6 unknown; 24 were of American parentage, 117 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 64 cases and 3 deaths; scarlatina, 29 cases and 0 deaths; typhoid fever, 12 cases and 2 deaths; measles, 12 cases and 0 deaths; tuberculosis, 32 cases and 14 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 24, whooping cough 1, heart disease 19, bronchitis 5 and marasmus 3. There were 12 deaths from violent causes. The number of children who died under one year was 27; the number under five years 39. The number of persons who died over sixty years of age was 37. The deaths in public institutions were 57.

There were two cases of cerebrospinal meningitis during the week; no deaths.

Centenarians. — The death of Mrs. Margaret Holmes is announced from Berlin, N. H., at the reputed age of one hundred and two years. She was one of twenty-two children and her mother is said also to have lived one hundred years.

The Rev. William Howe died at his home in Cambridge, Nov. 28, in his one hundred and first year. Up to a week before his death he had been able to be out, and voted at the last election.

NEW YORK.

A Centenarian. — Mrs. Ann Betts of East Orange died on Nov. 23, at the well authenticated age of one hundred and three years. Just as she was about to celebrate her one hundred and third birthday, on the 6th of October last, she had an attack of peritonitis, and she never recovered from this. Mrs. Betts, who was born at Gravesend, Long Island (now in the New York City limits), in 1803, came of old Dutch stock, and was a daughter of Abram Van Emburgh, a commissioned officer in the Continental Army during the Revolutionary War. Her husband, Joseph Betts, served in the American Army in the war of 1812, and she was one of the few widows of soldiers of that war still drawing pensions.

Bequests to the Sydenham Hospital. — At the annual meeting of the board of directors of the Sydenham Hospital, which was held on Nov. 22, Dr. William M. Polk was one of the speakers. Isaac Gugenheim announced that he would erect a new building for the institution, to cost $500,000, provided the directors would guarantee an income of not less than $50,000 for its maintenance. Besides making this offer, Mr. Guggenheim presented to the board the sum of $60,000 which he had collected during the past month to pay the expenses of the hospital. Of this amount he himself contributed $10,000. The Sydenham Hospital was started three years ago, and at present occupies seven adjoining dwelling-houses in East 116th Street. It maintains a maternity department, and the capacity of the institution is 80 beds, 75% of which are free.

Meeting of Branch of National Red Cross Society. — The annual meeting of the New York State Branch of the American National Cross Society was held at the Waldorf-Astoria on Nov. 20, when William Cary Sanger, formerly Assistant Secretary of War, was re-elected president, and the Hon. Elihu Root was elected first vice-president. The treasurer's report showed that during the past year $1,128,464 had been received from all sources. A large portion of this amount was contributed for the relief of the California sufferers, and $510,000 of it was paid over to the National Red Cross Society for this purpose. Among those present was Alfred Mosely, who fitted out a hospital with two hundred beds in South Africa. He spoke of the difficulties encountered by England at the outbreak of the Boer war, and cited, as an example worthy of emulation, the work accomplished by the amateur organization known as the St. John's Ambulance Corps.

Work of Children's Aid Society. — Among the items in the report of the past year's work, which was presented at the annual meeting of the Children's Aid Society, held on Nov. 27, were the following: Number given a week's outing in the health home, summer home, farm and other country places, 11,436; number of women and children given day outings at the seaside and in the country, 11,067; number of boys at the farm school, 1,059; number of children treated by the Sick Children's Mission, 2,142.

Dinner to Macdonough Craven. — A complimentary dinner was recently given at the University Club to Macdonough Craven, the new head of the street cleaning department, by fourteen of his former associates at the Naval Academy at Annapolis. In his remarks on this occasion it is a matter of encouragement to learn that Mr. Craven stated that his chief ambition was to endeavor to overcome, as far as possible, the dust nuisance, the most difficult problem which he had to contend with in his position. The extreme importance of this, it may be remembered, was dwelt upon with much emphasis in the report presented a number of months ago by the New York Health Department's commission on acute infectious respiratory diseases, and was brought out still more elaborately in the forcible papers on the prophylaxis of pneumonia which were read by Dr. James M. Anders, of Philadelphia, before the American Therapeutic Society in May, 1905, and the Medical Association of the Greater City of New York in December.

Ascent of Mt. McKinley. — Dr. Frederick A. Cook, who in September last, accomplished for the first time on record the ascent of Mount McKinley in Alaska, believed to be the highest mountain on the western hemisphere, and who has just returned to New York, is a registered physician of Brooklyn. He was graduated from the medical department of the University of New York in 1890, and is a member of the Kings County and the New York State Medical Societies. For the past fifteen years he has been engaged to a considerable extent in polar explorations. Acting in the capacity of surgeon to the expeditions, he accompanied Commander Peary in 1891 and again in 1901, and was with Captain Amundsen in the Belgian antarctic expedition of 1897–99.

Death of an Aged Druggist. — Dr. Peter W. Ray, said to have been the oldest druggist in the state of New York, and who was a physician as well, died suddenly from cardiac disease on Nov. 26, at the age of eighty-two years. He was a native of New York City, and was graduated from the Castleton (Vt.) Medical College in 1850. For fifty-three years he kept a drug store in Brooklyn, and he was the founder of the Brooklyn College of Pharmacy.

Obituary.

GEN. OTIS H. MARION, M.D.

Brig.-Gen. Otis H. Marion died last week in Allston of pneumonia with complications at the age of fifty-nine. Dr. Marion's life had been an active one, not only as a physician, but also in relation to military matters. with which he was identified from an early age.

Dr. Marion was born at Burlington, Vt.; he was graduated from Dartmouth College in 1873 and the Harvard Medical School in 1876. During two years thereafter he served as house surgeon at the Boston City Hospital, and after a year spent abroad in study returned to Allston, a suburb of Boston, where he had practiced since. He was consulting physician to the Woman's Charity Club Hospital, surgeon of the first regiment of the Massachusetts Volunteer Militia and a member of the board of medical officers of the same organization. He also held membership in a number of social clubs, in the United States Association of Military Surgeons, the Massachusetts Emergency and Hygiene Association and the Masonic Fraternity and Odd Fellows. He was the first to introduce lectures on first aid to the injured in the militia, and did much toward bringing system into the medical department of the Volunteer Militia. He was himself particularly skilled in the use of the rifle and was ranked as a sharpshooter.

Dr. Marion was respected both for his personal qualities and also for his public spirit shown in various departments of activity. He was one of those whose interests extended beyond the medical profession.

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Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
Nov. 17, 1906.

1. *Dudley, E. C. *Utilization of the Broad Ligaments in Complete Descent of the Uterus, Hysteromyomectomy and Removal of the Uterine Appendages.*
2. Church, W. F. *Milk in Infectious Diseases.*
3. *Benedict, A. L. *The Quantitative Estimation of Diet in Private Practice.*
4. *Stern, H. *The Diet in Albuminuria.*
5. Kebler, L. F. *Nostrums and Fraudulent Methods.*
6. Bulkley, L. D. *The Cure of Psoriasis.*
7. Mills, C. R. *Unilateral Ascending Paralysis and Unilateral Descending Paralysis.*
8. Hammond, P. *The After-Care of the Radical Mastoid Operation.*
9. *Carrel, A., and Guthrie, C. C. *Anastomosis of Blood Vessels by the Patching Method. Transplantation of the Kidney.*
10. Humiston, R. *Acetozone in Typhoid Fever.*

1. Dudley holds that descent of the uterus is primarily due to failure of the uterus after childbirth to resume its normal position with the fundus forward from the cervix and the axis at right angles to the direction of the vagina. If the utero-sacral ligaments are so stretched and the fundus so incarcerated in the hollow of the sacrum that the axis of the uterus is continuous with that of the vagina, it is likely to descend progressively, with increasing cystocele and rectocele, forming practically a hernia. To correct this Dudley divides the broad ligaments in their lower two thirds (by the vaginal route), and joins their ends in front of the cervix so as to hold it backward. He includes the anterior wall of the uterus in the stitches of his operation for cystocele, so as to hold the fundus forward. Lastly he repairs the perineum. In hysterectomy, either vaginal or supravaginal, he recommends uniting the remaining ends of the broad ligaments in order to increase the strength of the pelvic floor. In removal of the uterine appendages, also, he advises reefing of the broad ligaments, so as to preserve their action in supporting the uterus.

3. Benedict urges a more general use of our knowledge of the principles of physiological requirements in the prescription of diets in medical practice. The human adult requires in a day at least 50 gm. of proteid, 300 of carbohydrate, 50 of fat, 9 of salt and 0.1 of iron; also 2,500 to 3,000 cc. of water, of which one third will be contained in foods, and the remainder is to be taken in fruits and beverages. In translating these requirements into terms of ordinary food stuffs he gives numerous valuable bits of information of which the following may be noted. Lean meats and fish may be considered as 20% proteid. Sugar, sago and corn starch are 98% carbohydrate. Butter, lard and olive oil are 90–100% fat. Vegetables, such as asparagus, cauliflower, spinach, cabbage and pumpkin, contain practically no nutriment for man. Sweet fruits contain 5–15% sugars. Peas and beans contain 2–9% proteid and 5–20% carbohydrate. Most bread stuffs and cereals contain about 10% proteid and 65–70% carbohydrate. Potato, sweet potato and banana contain 1–5% proteid and 20–30% carbohydrate. Fat pork and bacon are 80% fat; fat meats contain 35%. Each egg contains 6 gm. of proteid in the white, 2.5 gm. of proteid and 5 of fat in the yolk. Milk contains about 4% each of proteid, carbohydrate and fat. From these data a dietary can be prescribed according to the needs of the patient. Amounts can be determined either by weighing on improvised balances (new nickels are accurate 5-gm. weights) or by bulk. A tumblerful is about 200 cc.; a tablespoon holds 15 cc. A slice of bread or a soda cracker weighs about 25 gm. A lump of sugar weight 6 gm. A thin slice of beef, or the meat of a lamb chop, weighs usually 25 gm. A small potato weighs 50 gm. A small serving of butter weighs 10–15 gm. With these data an intelligent patient can calculate the proper proportions and amounts in his diet without weighing.

4. Stern recapitulates the results of a series of experimental studies of 82 patients who had the one common symptom of excretion of serum albumin in the urine. The object was to determine the influence of certain types of nutritives and ingesta not on the underlying disease, but on the accompanying symptoms of albuminuria. The changes observed during a milk diet were; diminution of the albumin, in the larger number of cases in which any changes at all occurred, and, in a smaller proportion, an increase. The influence of rest in diminishing the albuminuria seems marked in these experiments. The change to other proteid diet was more frequently accompanied by a transitory increase than by a decrease, though in the majority no effect was observed. His conclusions as regards carbohydrates and fats are that they have practically little effect on the production of albumin and on the rise and fall of the albuminuric excretion. The ingestion of large amounts of water, while it enhances diuresis and intestinal peristalsis, and favors gastro-intestinal disorders, has little or no effect on the albuminuria in the vast majority of cases. In the treatment of albuminuria *per se* the maximum amount of water taken is of little practical importance unless some advanced heart or kidney trouble, or some gastro-intestinal disorder exists; and the minimum amount of water should not for any length of time be less than is required for the intrasystemic osmotic processes.

9. Carrel and Guthrie describe their technique in performing anastomosis of blood vessels. By means of this they have been able to transplant the kidney from one animal into another, the circulation in the transplanted kidney being excellent four months later.

SURGERY, GYNECOLOGY AND OBSTETRICS.
NOVEMBER, 1906.

1. *Davis, E. P. *Forty-eight Cases of Delivery by Abdominal Section.*
2. Montgomery, E. E. *Therapeutics of Retro-Displacement.*
3. Gibbon, J. H. *Treatment of Tuberculous Glands of the Neck.*
4. Coles, S. *Lacerations of the Cervix Uteri.*
5. Maier, F. H. *Relaxation and Atony of the Non-Puerperal Uterus Incident to Dilatation and Curettage.*
6. Foulkrod, C. *Report of Three Cases of Eclampsia. Recovering without Delivery.*
7. *Gillmore, R. *Insidious Affections of the Kidney in the Young, with Direct Bearing on the Prenatal Origin.*
8. Lynch, F. W. *Dystocia from Congenital Cystic Kidney of the Foetus. With Report of a Case.*
9. Bland, P. B. *A Statistical Study of Deaths from Cancer in the City of Philadelphia, with Especial Reference to Cancer of the Uterus.*
01. *Da Costa, J. C. *Report of a Case of Traumatic Asemia.*
11. Fisher, J. M. *The Relation of the General Surgeon to the Practice of Gynecology.*
12. Ulrich, G. A. *Tamponing the Puerperal Uterus.*
13. Rosenberger, R. C. *A Bacteriological and Histo-*

logical Study of Organs Removed from Tuberculous Subjects.
14. *Belfield, W. T. *Irrigation and Drainage of the Seminal Duct and Vesicle through the Vas Deferens.*
15. Ellis, A. G. *Lipoma of the Uterus.*
16. *Keen, W. W., and Coplin, W. M. L. *Sacrococcygeal Tumor (teratoma).*
17. Bland, P. B. *Report of a Case of Mummified Foetus of Thirteen Years' Standing.*

1. Of the 48 cases reported by Davis, 39 were uninfected at the time of operation. The mortality in this class was one, or 2.6%. Six cases were infected before coming to operation and of these 50% lived. Three cases operated on for eclampsia, two ante-mortem and one post-mortem, all terminated fatally. In 40 cases where the child was well developed and in good condition there was no infantile mortality.

7. Gillmore believes that prenatal impairment of the kidneys predisposes, and is an almost universal factor in producing, an early post-natal nephritis. He emphasizes the point that as long as we are confronted with fatal cases of uremia, in the young, occurring after an anesthetic has been administered for some simple operation, or where nephritis becomes a permanent sequel of some child's disease, we cannot cease our investigations until we have determined how much of the etiological factor is of prenatal origin. Five cases are brought forth in support of the author's contention.

10. A case of skull fracture is reported by Da Costa in which there was complete loss of sign language in a deaf mute. The patient was unable to express himself at all, either with the fingers or by writing, though he could understand what was asked him by signs. At operation a piece of bone was found to be making pressure on the third frontal convolution on the right. Removal of this restored his power to use the sign language in a few hours, and a complete recovery ensued.

14. Belfield advocates the treatment of inflammatory conditions of the seminal vesicle by irrigation through an opening made in the vas deferens. Subsequent stenosis of the vas is said not to occur.

16. A very rare form of teratoma is described in which, besides an imperfection in the sacrum and coccyx and an attempted duplication of the spine, the tumor was connected by a fistulous tract with the rectum. The wall of the fistula closely resembled a bronchus in its structure. Keen was able to excise the tumor and close the fistula successfully.

The Lancet.

Nov. 10, 1906.

1. *Sharkey, S. J. *Rectal Alimentation.*
2. *Clinton, H. H. *Adolescent or Late Rickets.*
3. *Hay, J. *Stokes-Adams Disease and Cardiac Arrhythmia.*
4. Copeman, S. M. *Note on Determinations of the Amount of Physiologically Active Hydrochloric Acid in the Stomachs of Normal Mice and of Mice Suffering from Cancer Experimentally Produced.*
5. Thresh, J. C. *Erythema Autumnale, Harvest Rash or Prurigo du Rouget.*
6. Barwell, H. *The Treatment of Laryngeal Tuberculosis.*
7. Maberly, J. *Is Sulphate of Soda a True Intestinal Antiseptic?*
8. Goadby, K. *The Spirilla of the Mouth.*
9. Waterhouse, Rupert. *A Case of Sclerema Neonatorum.*

1. The writer gives a careful and exhaustive review of the literature on the subject and speaks of the great diversity of opinion regarding the value of nutrient enemata. He covers the ground of enemata in general, and the absorption of proteids, carbohydrates, fats, salts, alcohol and water. He concludes by saying that with rectal enemata a very considerable amount of nourishment can be introduced into the body, especially as the present state of surgery makes it only a temporary measure. Water is easily absorbed; sugar especially grape sugar, very readily, as are the salts. There is very little absorption of fats; as regards proteids, peptonized foods, such as somatose and powdered casein, are absorbed in sufficient quantities to maintain a nitrogenous equilibrium, for a short while at least. He then considers certain investigations which go to show that water alone, as an enema can supply the body needs for as long a period as is usually required. These injections do not call forth the flow of gastric juice which an ordinary nutritive enema does, and, therefore, are better for an ulcerous condition of the stomach.

2. There are only a few cases of this condition reported; without the x-ray it is sometimes hard to distinguish from osteomalacia, while again all signs of rickets as shown in the infantile type may be present; it may be a condition continuing from childhood or one first appearing at adolescence or later. He reports one case where after a normal infancy, changes came on at the age of eleven years, and again later at nineteen years. Two other cases showed changes first appearing at twelve and thirteen years, respectively. He is of the opinion that true adolescent rickets is not a continuation of an infantile type but a distinctly new condition due not so much to faulty diet as to faulty hygienic surroundings and other conditions affecting metabolism. In some cases thyroid extract has a markedly beneficial effect.

3. This article is a detailed description of a case of heart block with tracings and pathological findings. For years a 2–1 rhythm was present, followed by typical epileptiform seizures, in one of which the patient died. The auricular-ventricular bundle was found to be diseased. Thyroid extract was given over part of the time with no other effect apparently than to increase auricular frequency.

British Medical Journal.

Nov. 10, 1906.

1. Rigden, A. *The Insanity of Childbirth.*
2. Daniell, G. W. B. *Ethyl Chloride as a General Anesthetic in Conjunction with Ether.*
3. Ketchen, A. D. *Notes on a Case of Quinine Hemoglobinuria or Blackwater Fever.*
4. Adam, J. *Tetanus in Two Brothers. Subdural and Subcutaneous Injections of Serum. Recovery.*
5. Hankin, E. H. *Improved Methods for Recognition of Blood and Seminal Stains, Especially in Tropical Climates.*
6. *Bingham, G. A.; Shuttleworth, C. B.; Thomas, J. L. *Discussion on Enlargement of the Prostate and Its Treatment.*
7. MacLaren, Murray. *Remarks on Posture as an Aid to Surgery.*
8. Welford, A. B. *Fracture-Dislocation of the Spine.*
9. *Bell, J. *Operative Treatment of Irreducible Luxation of the Semilunar Cartilages of the Knee Joint.*
10. Shepherd, F. J. *A Case of Extensive Tuberculous Ulceration of the Small Intestines Which Necessitated the Removal of Five Feet of Ileum.*
11. *Armstrong, G. E. *Splenectomy and Banti's Disease.*
12. Olmsted, Ingersoll. *Surgical Treatment of Chronic Colitis.*
13. Carson, H. W. *One Hundred Consecutive Cases of Appendix Operation.*
14. McKenzie, B. E. *The Treatment of Congenital Clubfoot.*
15. *MacCallum, W. G. *The Surgical Relation of the Parathyroid Glands.*
16. Powell, N. A. *Intestinal Obstruction with or Following Disease of the Vermiform Appendix.*
17. *White, S.; Turner, G. G.; Stewart, John. *Discussion on the Surgical Treatment of Ascites Secondary to Vascular Cirrhosis of the Liver.*
18. *Mayo, W. J.; Franklin, G. C. *A Discussion on the Surgical Treatment of Duodenal Ulcer.*
19. Bond, C. J.; Howitt, H. *A Discussion on Acute Septic Peritonitis.*

6. Bingham first considers the anatomy of the normal prostate and the pathology of its enlargement. Any one or more of the various histological elements contained in the gland may increase in size with usually a thin shell of fibro-muscular tissue outside. He divides patients with enlarged prostates into three classes for treatment: (1) Early cases with only symptoms of obstruction without

cystitis or pyelitis; (2) those with cystitis and more advanced symptoms, and (3) cases midway between (1) and (2.) For the first class he advises a radical operation; for the second, a modified Bottini, or in weak and debilitated cases a suprapubic cystotomy. In every case the bladder must be gotten into first class condition before operation. Of the radical operations the perineal route has the lower mortality.

Thomas, writing on the same subject, concludes that there is no choice between the perineal and suprapubic routes as far as mortality is concerned. The suprapubic method is best for tumors of the middle lobe, removal of calculi and control of hemorrhage, but requires long fingers. According to post-mortem evidence the entire prostate has never been removed, for this cannot be done without removing the prostatic urethra also.

9. Bell refers only to those cases of dislocation in which reduction is impossible. Orthopedic treatment he considers not satisfactory, and with the ordinary operations with a small lateral incision he has had poor results. He now uses a free anterior transpatellar incision with a consequent wide opening of the joint, a minimum manipulation and an easy removal of all blood clot. He reports four cases in which this large incision through the patella had been used with marked success.

11. Under the term Banti's disease, Armstrong understands the symptom-complex described by Banti in 1882, consisting of a progressive anemia with an enlarged spleen without known cause. The changes in the spleen are fairly uniform, consisting of enlargement, sclerosis of capsule and reticulum, sclerosis and atrophy of the Malpighian corpuscles and atrophy of the pulp. He gives a detailed report of a case in which splenectomy was done. The spleen was very large and there was a marked degree of anemia. On coming out of ether a violent condition of tetany developed which, however, quieted down of itself. The condition of the spleen was about the same as that described above. Seven months after the operation, the patient's blood became normal, and his general condition was excellent. Almost all of the reported cases show a remarkable return to health.

15. The significance of the parathyroid glands has been emphasized during late years, and in thyroid operations one of the great dangers has been that of removing some of the parathyroids also. As there seems to be some uncertainty as to their exact location, MacCallum considers an exact description of their anatomical relation much needed. A striking condition of tetany with death soon following is produced in animals on whom a parathyroidectomy has been done; this same thing often happens after thyroid operations on man. The rôle of the parathyroids is uncertain but he thinks it likely that they neutralize some poison secreted by another gland. He describes a case of thyrodectomy on a woman done by Halstead, who had violent tetany, and even now, long after the operation, requires a constant supply of ox's parathyroids to keep her in normal condition. The glands, of which there are normally four, average in size about 6 to 8 mm. long, 3 mm. wide and 1 to 2 mm. thick. They are soft, inelastic and flabby in contrast to the thyroid tissue. They lie in the loose areolar tissue along the posterior edge of the lobes of the thyroid near the esophagus; this is their usual position but their exact relation to the thyroid is very variable. He thinks that they probably have no relation to exophthalmic goitre.

17. Cirrhosis of the liver is here restricted to the pathological changes usually described as a vascular cirrhosis, with hemorrhages from the alimentary tract and ascites (*i. e.*, Laennic's or alcoholic cirrhosis). Drummond and Talma were the first to suggest operative treatment. Their theory was based on the normal free intercommunication between the portal and systemic systems, and the enlargement of the anastomotic veins occurring in cirrhosis, especially the so-called "caput Medusæ." There are two theories as to the cause of the ascites in cirrhosis, one, that it is a passive effusion of serum, another, that there is no passive effusion, but that owing to the conditions of the liver there is a toxic product not eliminated from the blood which acts as a lymphagogue. This theory is based on the fact that in animals ligation of the portal vein does not cause ascites; it does not take into consideration that in animals the anastomosis between portal and systemic systems may be sufficient to carry the extra load without ascites. The operation is supposed to provide supplementary channels for anastomosis. The value of drainage after the operation is an often neglected but very important feature; it keeps the abdomen dry and promotes the desired adhesions. Old or feeble patients do not do well. Diabetes or nephritis contra-indicates operation. Always tap before operating; a patient who does not stand frequent tapping is not a fit subject for operation. The extent to which anastomotic efforts should be carried depends on the condition of the patient. White, as a regular part of his operation, makes a one-inch suprapubic incision for a glass drainage tube carried down into the pelvis. In rare cases a direct anastomosis can be made between the portal vein and the inferior vena cava. He has collected 273 cases in all with a mortality of 20.8% within a month. Thirty-two and nine-tenths per cent were not improved, 12.4% improved, 33% cured of ascites. The complications are ventral hernia and intestinal obstruction. He gives 5 cases of his own in detail.

18. In his statistics W. J. Mayo has found 188 duodenal ulcers out of 635 ulcers operated on by himself and C. H. Mayo. He uses a right rectus incision, ¾ of an inch from the median line. Seventy-three per cent of his cases were males. As causes he cites changed secretion, especially excessive acidity, mechanical injury from the impact of food, and anemia. The diagnosis of ulcer is usually easy; the differential diagnosis from gastric ulcer often impossible. Blood in stool or vomitus is common to both. The periodicity of the attacks of stomach trouble is suggestive. The usual indications for operation are pain, chronic underfeeding and interference with gastric drainage. Hemorrhage is a rare cause of operation. Gastrojejunostomy by the posterior no-loop method is the operation of choice; by this method he has had 1 death out of 167 operations. In a few he has used a direct excision of the ulcer with a plastic closure or end-to-end union. After operation the patient should be set up in bed so that the pelvis, which is resistant to toxic absorption, will receive most of the infectious material if any is present.

Deutsche Medinische Wochenschrift, No. 45.

Nov. 8, 1906.

1. *Rabinowitsch, L. *New Researches on Tuberculosis.*
2. *Herz, M. *The Physical Treatment of Chronic Kidney Diseases.*
3. Lindenstein. *Experiences with Lumbar Anesthesia.*
4. *Goebel. *Plastic Operations on the Chest.*
5. Dietrich and Arnheim. *Formysol, a New Disinfectant.*
6. Velhagen. *Hereditary Degeneration of the Cornea.*
7. Wolff, W. *A New Method of Using Concentrated Carbolic Acid in Buboes and Furuncles.*
8. Gessner, W. *The Effect of Subcutaneous Injections of Heterogenous Proteid on New-Born Animals.*
9. *Adler and Hensel. *The Effect of Intravenous Injections of Nicotine on the Aorta of Rabbits.*
10 Ogata. *Preliminary Communication on the Etiology of Tsutsugamushi.* (Continued article.)

1. Rabinowitsch has made interesting observations on tuberculosis at the Zoölogical Garden in Berlin. They show that birds are susceptible to infection with the human variety of the tubercle bacillus. She regards the different types of tubercle bacilli found in birds, cattle and man as varieties of one species, and has seen transitional forms between the human and bovine varieties. Apes were found susceptible to all three varieties.

2. Herz recommends the combined use of air and light baths in the treatment of chronic Bright's disease, and lays much stress on the drying of the skin after sweating procedures, which he accomplishes by means of a current of air. All cold applications and unnecessary wetting of the skin must be avoided, on account of the danger of exacerbations. Excessive sweating is best produced by the light-bath; transpiration without sweating is brought about by the use of an air current heated to 40° C. Transpiration may be diminished by using an air current at a lower temperature, 25° to 30° C.

4. Goebel, after a review of the various methods of

thoracoplasty advocates, besides the resection of ribs, the use of large muscle flaps to further aid in filling the cavity. Besides the anterior pectoral muscles, those arising from the scapula have also been used after resection of this bone.

9. Adler and Hensel gave intravenous injections of nicotine (1½ mg.) to rabbits, and observed the effect on the aorta. After a series of injections they found lesions consisting primarily in necrosis of the muscle fibers of the media, with calcification. This was followed by proliferation of the intima, and in some cases by partial dilatation of the vessel. Ulcers or yellow patches were never present.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 45.
Nov. 6, 1906.

1. **FRAENKEL, E.** *Infantile Scorbutus.* (Continued article.)
2. ***BECHTOLD, A.** *The Epidemic Occurrence of Endocarditis in Muscular Rheumatism.*
3. **EPPENSTEIN.** *The Proteolytic Ferment of Leukocytes, and the Inhibitory Action of the Blood Serum on Ferments.*
4. ***BLUM, L.** *A Case of Typhoid Arteritis with Recovery.*
5. ***GRASSMANN, K.** *Rare Forms of Valvular Disease.*
6. **SCHÖPPLER.** *Sarcomatosis of the Epicardium.*
7. **BESOLD, G.** *Graphic Representation of Pulmonary Physical Signs.*
8. **WALLART, J.** *The Simultaneous Demonstration of Fat, Iron-containing Pigment, and Nuclei in Frozen Sections.*
9. ***SONDERMANN, R.** *The Suction Treatment of Disease of the Nose.*

2. Bechtold reports from Leube's clinic 11 cases of mitral endocarditis complicating muscular rheumatism; 6 of these occurred within a short period during an epidemic of rheumatic diseases. All showed the symptoms common to acute infectious diseases; complete recovery occurred in 5. These cases offer further confirmation of Leube's theory, that muscular rheumatism is an infectious disease. Bechtold regards it as closely related to infectious myositis, differing from it only in degree. [The fact that disappearance of the murmur with complete recovery occurred in nearly one half of these cases suggests that some of the murmurs heard may have been functional, or due to myocarditis.]

4. This interesting case of typhoid arteritis of the femoral artery, reported by Blum, showed all the cardinal signs of this rare complication, *viz.*, intense pain, tenderness along the course of the artery, diminished pulsation and inflammatory thickening. Contrary to the usual rule recovery took place without the occurrence of gangrene. Examination of the wall of the artery in other cases has disclosed the presence of typhoid bacilli.

5. Of Grassmann's two cases of mitral disease, the first was noteworthy because of complete recovery, with disappearance of all physical signs, and death some years afterward from a fresh attack of endocarditis; the second showed a very unusual complication, — intestinal hemorrhage with fatal issue and with no lesion of the intestine except venous stasis.

9. By the use of suction treatment in nasal affections, two things are accomplished, — first the production of hyperemia and second the emptying of cavities filled with abnormal secretions. Sondermann has found this method very useful in the treatment of acute, and some cases of chronic, inflammation of the antrum; if it does not give marked relief in a few days, other measures should be resorted to. It is also of diagnostic value in distinguishing the source of a purulent discharge from the nose, for pus from the antrum will only be obtained by suction when the patient puts the head forward and to one side. This is due to the position of the entrance to the antrum. He describes his instrument for the production of suction.

LE BULLETIN MEDICALE.
Nov. 7, 1906.

Tuberculosis Among Paris School Children. **GRANCHER** presents an interesting article on this subject.

It consists of three parts: (1) The results of examination of 4,226 boys and girls in Paris schools from November, 1903, to June, 1906. (2) The results of experimental treatment in two schools over a period of twenty-six months on 103 children. (3) Conclusions.

In examination only classical methods were used. He considers radioscopy inferior to the other means for early diagnosis, and can say but little in favor of sero and cyto-diagnosis. Tuberculin he considers too sensitive for this purpose. It is wrong, he says, to expect all the signs and symptoms of early tuberculosis to appear at once; they come one after another, over long intervals. In examination of the lungs he divides the condition there found into three stages for diagnosis. First stage, persistent feeble breathing at an apex accompanied by signs of debility, anemia, glands, slight cough, tendency to catch cold, etc. If this feeble breathing extends over one lung, or one side, it means large intra-pulmonary glands causing decrease in lung function due to pressure on a bronchus or vessels. The second stage is the same as the first with increased signs, slight bronchial breathing etc., in addition. The third stage is the second with the addition of slight dullness.

When râles appear it is already too late to treat the patient with much hope of success. To be conclusive all these signs must be clear and unmistakable. The suspected children were examined two or three times. On the average, 15% were found to be tubercular, most in the first stage. Out of 4,226 cases only 3 had open tuberculosis. All the others, closed cases, continued at school. As regards treatment in two schools the experiment was tried of giving extra meals at school; when the families were intelligent something could be done at home. The results as yet are not striking; only first stage cases have improved; he firmly believes that if left alone they will become openly tubercular later. He agrees with Calmette and Behring that these early tuberculous bronchial glands are of intestinal origin. He believes that tuberculosis is contracted in the home during infancy; that adult tuberculosis is only an awakening of an early process, and that to preserve the child is the best way of treating tuberculosis. He believes in compulsory examination of school children and diagnosis and treatment of tuberculosis in the first stage; that extra meals at school do little good; that the work must be done in the home. As for treatment a proposed method of taking these children out of the cities to country schools and boarding them is impracticable; he thinks sanatoria schools, "*Ecoles de plein air*," should be formed around each large city, one for boys and one for girls.

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Miscellany.

PURE MILK.

AN important conference on the subject of pure milk was held, under the auspices of the New York Association for Improving the Condition of the Poor, at the New York Academy of Medicine on Nov. 20. Among those who attended at the invitation of the society were Drs. Charles Harrington, secretary of the Massachusetts State Board of Health, J. S. Fulton, secretary of the Maryland State Board of Health, C. J. Lane, of the Bureau of Animal Industry, United States Department of Agriculture, R. A. Pearson, professor in the Department of Dairying, Cornell University, Dr. George W. Goler, Health Officer, Rochester, N. Y., and the following from New York: Drs. A. Jacobi, Thomas Darlington, H. M. Biggs, Rowland G. Freeman, L. Emmett Holt, J. W. Winters, W. H. Park, E. K. Dunham, J. W. Brannan, Simon Flexner, W. P. Northrup, and H. D. Chapin. Among the papers presented were one by E. J. Lederlee, formerly Health

Commissioner, on the use of skimmed milk, and one by Nathan Srauss, on the pasteurization of milk, which was read by Dr. Green, head of the Strauss system of pasteurized milk depots for the poor. Dr. Lederlee, whose opinion is of value on account of his expert knowledge of the subject and also from the fact that he is not now connected with the Health Department, to which he was chemist for an extended period before he was appointed commissioner, stated that the milk supply of New York was never before in as good condition from every standpoint as at present. The Health Department, he said, is doing more and better work than ever before, both in the city and country, and never has there been such effective co-operation with the department on the part of the milk dealers. He advocated the sale of skimmed milk, under suitable restrictions, and said that, so far as he knew, New York City was the only place in the world where it was a crime to sell it, even when properly labeled. One result of this official prohibition was that the public was convinced that such milk is unwholesome and injurious, a most unfortunate and false impression. He desired it to be understood, however, that he did not of course regard it as a proper food for infants. In the discussion of the paper on pasteurization, Dr. Goler said that the name of pasteurization attached to milk meant nothing in many instances, and the notion that such milk could be handled with impunity led to its accumulating a vast amount of impurity. In Rochester, where the pasteurization plan was adopted officially, it had, after trial, been abandoned, and the city had now established a model farm and milk depots where the cleanliness secured by rigid sanitary precautions had taken the place of the artificial process. President Darlington, of the New York Health Department, commended the work done by the Strauss milk stations, but was not in favor of an official adoption of the pasteurization plan by the city.

As a result of their deliberations the members sanctioned an expression of their views in a general statement, which is in part as follows: It is the sense of this conference that (1) The sale of skimmed milk should be permitted, but not for consumption by infants and not in retail stores where whole milk is sold. (2) Pasteurization should not be made compulsory. Commercial pasteurization has some value, but not the same as true pasteurization. (3) Infants' milk depots should use both raw and pasteurized milk. Much educational work is possible in connection with milk depots. It is questionable whether municipal depots are desirable. (4) Nothing should be sold in connection with milk except other dairy products and sealed package goods; where milk is sold in grocery stores separate booths should be provided in which the milk is kept free from contact with the other articles dealt in. [Here follow a number of specific regulations recommended for the care and handling of milk.] (5) It would be advisable in connection with the inspection of milk for violations of the sanitary code to combine some form of analysis for bacteria when a proper bacteriological standard has been evolved from experiments with the city's milk supply. (6) Education on cleanliness should be spread in every possible way among dairymen, farmers and milk handlers. Milk supply depots should be established wherever possible in tenement districts, and lectures or instructions given there to mothers on the knowledge of milk and its care. (7) Legislation should be enacted making pollution of milk receptacles a misdemeaner. In general, the sanitary code now covers the ground necessary to preserve cleanliness of milk. Enforcement of laws, rather than new legislation, is required. State supervision should be encouraged. Diseased cattle should be weeded out of every herd.

A committee was appointed to prepare and publish a detailed report of the work of the conference, and committees were also authorized to co-operate with the Health Department and with the Medical Society of the County of New York in the preservation of the purity of the milk supply of the city.

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Correspondence.

MEDICAL BOOKS NEEDED FOR THE PROFESSION IN SAN FRANCISCO.

Nov. 30, 1906.

To the Medical Profession of New England:

The medical profession of San Francisco lost its medical library, the San Francisco County Medical Society Library, in the fire last spring. Most of the physicians also lost whatever private libraries they had succeeded in collecting. A committee (named below) has been appointed by the American Medical Association and by the Association of American Physicians to collect and send books to San Francisco, both for the library and for private individuals when duplicate copies are sent on.

Will you send to Boston Medical Library any medical books of value or bound volumes of journals which you can spare? Fairly recent editions of standard text-books, foreign text-books or bound journals (French, German, and Italian), hospital reports, monographs of all sorts, books on special subjects, old classics (*e. g.*, Trousseau, Charcot), and the Sydenham Society publications are especially desired.

Acknowledgment of all that is received will be made through the medical journals, and the books will be packed and shipped as promptly as possible.

Signed:

Charles L. Dana, New York City, *Chairman.*
Frank Billings, Chicago.
E. Bates Block, Atlanta.
J. A. Capps, Chicago.
T. D. Coleman, Augusta, Ga.
George W. Crile, Cleveland.
W. E. Fischel, St. Louis.
F. Forchheimer, Cincinnati.
Charles L. Greene, St. Paul.
Arthur T. Holbrook, Milwaukee.
Geo. M. Kober, Washington.
Lawrence Litchfield, Pittsburg.
Rudolph Matas, New Orleans.
H. C. Moffitt, San Francisco.
John H. Musser, Philadelphia.
William Osler, Oxford, England.
Henry Sewall, Denver.
C. G. Stockton, Buffalo.
W. S. Thayer, Baltimore.
R. C. Cabot, Boston, *Secretary.*

RECORD OF MORTALITY

For the Week ending Saturday, Nov. 24, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,359	343	Quincy	9	0
Chicago	577	154	Waltham	2	—
Philadelphia	—	—	Gloucester	4	—
St. Louis	—	—	Pittsfield	10	3
Baltimore	218	45	Brookline	12	2
Cleveland	—	—	North Adams	9	3
Buffalo	—	—	Chicopee	8	5
Pittsburg	—	—	Northampton	1	1
Cincinnati	—	—	Medford	7	—
Milwaukee	—	—	Beverly	3	1
Washington	—	—	Hyde Park	2	1
Providence	71	21	Newburyport	—	—
Boston	190	50	Leominster	2	—
Worcester	40	7	Melrose	1	0
Fall River	31	9	Woburn	2	—
Cambridge	20	7	Marlborough	3	0
Lowell	39	10	Westfield	—	—
Lynn	27	6	Peabody	—	—
New Bedford	32	13	Revere	3	—
Springfield	20	5	Clinton	3	0
Lawrence	20	7	Attleboro	8	2
Somerville	13	3	Adams	3	1
Holyoke	8	3	Gardner	—	—
Brockton	8	1	Milford	1	1
Malden	10	2	Weymouth	7	0
Salem	16	5	Framingham	—	—
Chelsea	16	6	Watertown	1	0
Haverhill	9	2	Plymouth	—	—
Newton	11	3	Southbridge	1	1
Fitchburg	—	—	Wakefield	3	—
Taunton	14	4	Webster	—	—
Everett	6	2			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING DEC. 1, 1906.

O. J. Mink, assistant surgeon. Discharged from treatment at Naval Hospital, Yokohama, Japan; ordered home.

F. M. Furlong, surgeon. Detailed for special temporary duty during the preliminary trial of the U. S. S. "Vermont."

G. P. Lumsden, surgeon. Ordered to report to the President of the Naval Medical Examining Board, Washington, D. C., for examination preliminary to promotion, on Dec. 4, 1906, and when discharged by the Board, await orders.

S. L. Higgins, assistant surgeon. Appointed an assistant surgeon in the Navy from Nov. 12, 1906.

J. E. Page, surgeon. Detached from duty at the Naval Hospital, Norfolk, Va., and ordered to duty on the U. S. S. "Milwaukee."

U. R. Webb, passed assistant surgeon. Detached from duty at the Naval Torpedo Station, Newport, R. I., and ordered to duty at the Naval Hospital, San Juan, P. R., as the relief of Passed Assistant Surgeon E. M. Blackwell.

E. M. Blackwell, passed assistant surgeon. Detached from duty at the Naval Hospital, San Juan, P. R., and ordered home and wait orders.

J. L. Neilson, passed assistant surgeon. Ordered to temporary duty at the Naval Torpedo Station, Newport, R. I.

SOCIETY NOTICES.

Cambridge Hospital: House Officers. — An examination of candidates for two positions as House Officers at the Cambridge Hospital will be held at the Hospital, Saturday, the 15th of December, at 8 o'clock P.M. Applications made on application blanks obtained from the undersigned must be sent in not later than Dec. 13.

Frederic W. Taylor, M.D.,
1735 Massachusetts Ave.,
Cambridge, Mass.

Public Hearing on Tuberculosis. — The Commission upon Consumption gives notice of a Public Hearing to be held at Room 143, State House, Boston, on Monday, Dec. 10, at 11 A.M., to hear all persons interested in the advisability of the undertaking by the Commonwealth of the care and treatment of persons suffering with pulmonary tuberculosis in an advanced form.

Henry P. Walcott, M.D., *Chairman.*

RECENT DEATHS.

Dr. Leonard Francis Nicoll, of New York, died from typhoid fever on Nov. 25, in the thirty-first year of his age. He was graduated from Harvard in 1899 and from the medical department of Columbia University in 1903.

Dr. Glover Crane Arnold, of New York, died on Nov. 29, at the age of fifty-seven years. He was born in Charleston, S. C., and was a brother of the late Dr. William Arnold, who for a number of years was professor of physiology in the medical department of the University of the City of New York. He was graduated from Bellevue Hospital Medical College in 1873, and was a successful and highly esteemed practitioner. About four years ago he retired from active professional life on account of ill health.

Dr. Edward J. McDonough, of New York, died suddenly on Nov. 30, at the age of forty-four years. He was graduated from the medical department of the University of the city of New York in 1887.

BOOKS AND PAMPHLETS RECEIVED.

Mercers' Company Lectures on Recent Advances in the Physiology of Digestion, Delivered in the Michaelmas Term, 1905, in the Physiological Department of University College, London. By Ernest H. Starling, M.D., F.R.S. Illustrated. Chicago: W. T. Keener & Co. 1906.

Kimpton's Essential Series. Essentials of Medical Electricity. By Edward Reginald Morton, M.D., C.M., D.P.H. Illustrated. London: Henry Kimpton. Chicago: W. T. Keener & Co. 1905.

Practical Text-Book of Midwifery for Nurses. By Robert Jardine, M.D. Edin., M.R.C.S. Eng., F.F.P. & S. Glasg., F.R.S. Edin. Third edition. Illustrated. London: Henry Kimpton. Chicago: W. T. Keener & Co. 1906.

Atlas of Cutaneous Morbid Histology. Consisting of Fifty-three Colored Figures on Twenty-four Plates and Text. By Dr. Max Joseph and J. B. Van Deventer. Illustrated. Chicago: W. T. Keener & Co. 1906.

Statistics of Diet in Sanatoria for Consumptives. By Irving Fisher, Ph.D. Reprint.

A History of the Boston City Hospital from its Foundation until 1904. Boston. 1906.

The Economic Advisability of Inaugurating a National Department of Health. By J. Pease Norton, Ph. D. Reprint.

X-Ray Treatment as a Preventive of Recurrence Following Extirpation of Malignant Growths. By W. D. Witherbee, M.D. Reprint.

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Original Articles.

EXPERIENCE IN THE TREATMENT OF TABES BY CO-ORDINATIVE EXERCISES.

BY E. W. TAYLOR, M.D., AND EDWARD A. LINDSTROM,
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Since the publication in English of Frenkel's book on tabetic ataxia a somewhat widespread interest in the method of treatment which he describes has been manifest. It is, however, somewhat extraordinary that a method so easily applicable should not have been even more widely used. The reasons presumably are that in the practice of others than neurologists cases of tabes occur so infrequently that a systematic use of the method has not suggested itself, and also to the fact that even in neurological clinics and in the private practices of those who see many such cases disappointments have come because the method has not been persistently carried out over a long period of time by a person competent to give the required instruction. However this may be, the fact remains that many cases of tabes are neglected until their ataxia has reached so advanced a stage that treatment becomes exceedingly difficult. The object of this communication is simply to call attention to a well-recognized method and, if possible, to demonstrate its feasibility both in private practice and in hospital clinics.

It is not necessary to go into detail regarding the theory of the treatment. This is adequately and completely described in Frenkel's[1] book devoted to the subject. For the benefit of those who may be unfamiliar with this book and with the principles involved, we need merely say that the prime object of the treatment is to retrain the lost or damaged co-ordination, which is the underlying condition of the motor disturbances of tabes. This is accomplished by means of exercises beginning with simple movements in a recumbent position and progressing to more complicated ones in the semi-erect and finally in the erect position. The rationality of the procedure may easily be explained to a patient of ordinary intelligence, and under proper guidance there is never difficulty in eliciting his full interest in the educational process. We shall revert to the practical details later.

This paper is based upon a conscientious trial of the method advocated by Frenkel, both in the out-patient neurological service at the Massachusetts General Hospital and in private. The general results of the treatment have been most satisfactory. In all cases in which proper time and attention have been given improvement has been definite and in many instances very marked. We have had under our care approximately thirty patients during the last two years, fairly equally divided between hospital and personal practice. Several of these we report in brief.

Case I. H. L., a Jew, thirty years old, has been under treatment, with the exception of the summer months, steadily, since February 1905. At the beginning of treatment he was exceedingly ataxic, in wretched general condition and rapidly approaching the helpless stage. The signs of tabes were all well marked. His interest in the exercises was active from the first and has since become almost a passion with him. The result has been altogether gratifying and he is able now to walk long distances, several miles, with no assistance whatever and with relatively slight evidence of ataxia. This patient has been treated entirely at the Massachusetts General Hospital.

Case II. J. M., forty-eight years old, has been treated at the Massachusetts General Hospital since April, 1905, with similarly gratifying results. He sought relief because he was finding it impossible to continue in his work on account of increasing ataxia

Case III. R., forty-six years old, has been under almost continuous treatment since December, 1904, and shows a similar improvement to the cases already mentioned. He still continues to come to the clinic, and finds no marked difficulty in locomotion.

A very natural difficulty met with in the treatment of these cases at the Out-Patient Department is the failure on their part of faithful attendance. Many cases on our list, for example, have come but a few times, and have, therefore, not been able to benefit materially from a treatment which above all things demands patience and perseverance. The class system has, however, been found useful and might be carried to a further point than has yet been attained. To this matter we shall also revert later.

The cases in private practice, on the whole, have been more satisfactory, for the reason that they have continued treatment over long periods of time and with a devotion to detail which it is hard to secure in any but the exceptional hospital case, of which the patients alluded to above are examples.

Case IV. C., thirty-eight years old, a machinist by occupation. First seen in a markedly ataxic stage, the ataxia interfering greatly with his work and comfort. Absent knee jerks; Argyll-Robertson pupils; considerable disturbance in muscle-sensibility, but no marked hypotonia. Pains, gastric crises, and failing eyesight.

Exercises were at once begun and faithfully continued for many months. He regained a high degree of co-ordination and now, nearly three years after the beginning of the treatment, is relatively comfortable and able to work.

Case V. W., forty years old, was first seen June 6, 1904, suffering from extreme ataxia, which had somewhat rapidly developed during the preceding eight months. There was some pain, slight sphincter disturbance, numbness of the legs. Even with the feet apart he stood only with great difficulty; muscular sensibility of the feet much impaired and objective blunting of skin sensation about up to the knees. Knee jerks absent; Argyll-Robertson pupils.

Exercises were begun and continued under instruction for upwards of a year, and since then alone. The improvement from the beginning was definite, and within a few weeks he has come to Boston, transacted various business which required walking in crowded streets and returned the same day to his home in a neighboring city. His confidence has been restored, and although his ataxia is still apparent to a trained observer, he is able to walk without undue embarassment or fatigue which was wholly impossible two years ago.

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[1] Frenkel: The Treatment of Tabetic Ataxia. English translation by Freyberger. P. Blakiston's Son & Co., 1902.

CASE VI. J., thirty-four years old, seen Jan. 28, 1905, gave the usual history of lancinating pain, sphincter disturbance and loss of sexual power. Absent knee jerks, Argyll-Robertson pupils and a zone of diminished sensation under the nipples determined the diagnosis in spite of the absence of ataxia, except of the smallest possible degree.

Exercises were nevertheless undertaken and faithfully carried out, with the result that the patient acquired a much higher degree of co-ordination than the ordinary normal person has, which undoubtedly will be of much service to him when the inevitable ataxia begins to develop. This, so far as we know, has not yet occurred.

CASE VII. D., thirty-four years old, was first seen May 8, 1905. He was a heavy man and excessively ataxic. Supported by a cane he stood only with the greatest difficulty and was practically incapable of walking without such a support. Lancinating pains, lost knee jerks and inactive pupils, with bladder symptoms and cutaneous sensory disorders of the legs, were all present.

Co-ordinative exercises had been previously undertaken in a half-hearted way with no visible result. In spite of this, the patient willingly undertook them again in systematic fashion, and has continued them for the year and a half which has intervened. He is now able to go up and down stairs with comparative ease, before almost impossible, and walks with a very considerable degree of assurance, slightly assisted by a cane. He is, however, still unable to go a distance, for example, a quarter of a mile, without much fatigue. This is partly due to his weight, and, no doubt, also to the high degree of the ataxia which he is continually forced to overcome. The improvement, however, has been gratifying, especially in view of the fact that the exercises were given up for a time owing to an intercurrent attack of pleurisy.

CASE VIII. S., thirty-nine years old, seen Oct. 26, 1906. The patient had not walked for upwards of a month; the arms were also extremely ataxic, and he was well started in the so-called paralytic stage. There was very considerable hypotonicity and disorder of joint and cutaneous sensibility, both in the arms and legs. The knee jerks were lost, the pupils unresponsive to light and the general clinical picture one of a late stage of the disease. In this case, as, in fact, in all the others, no systematic exercises had ever been prescribed.

Exercises were at once begun and now, at the end of a month, a number of exercises in the lying position are done with good muscular control and co-ordination. Standing and walking exercises are not possible as yet, and are still further complicated by the fact that the sensory loss in the hands — muscle sense and stereognosis — render it practically impossible for him to hold a cane or other support. This, with the general hypotonicity of the muscles and the very high degree of ataxia, renders the case an extremely difficult one. It is unfortunate that the exercises were not begun a year or more ago. As it is, we expect improvement, and probably some degree of locomotion. This case is the latest as regards the degree of ataxia which we have attempted to treat.

The foregoing cases are examples of the untreated tabes which one meets in private practice. With one exception they were all markedly ataxic when first seen, and all have been benefited except the last, which has been under treatment only a month. All, excluding the pre-ataxic case, might have been benefited much more had the treatment been begun months or even years before.

GENERAL INDICATIONS.

Co-ordinative exercises are far more useful in tabes than in any other lesion of the spinal cord or nervous disorder. Dr. J. Madison Taylor[2] has, however, placed on record an exceedingly successful treatment by this general method of a case of paralysis agitans. This case should stimulate others to give the method a fair trial in this practically untreatable disease. Our personal experience in the treatment of paralysis agitans by this method is small, but we have observed certain favorable results, not sufficient, however, to justify the exercises as a routine measure. The complication of inco-ordination with spastic conditions, diffuse combined degeneration giving rise to an ataxic paraplegia, is not in general amenable to successful treatment by this method. The spasticity renders the movements difficult to perform, and the general weakness which goes with a degeneration of the pyramidal tracts renders the effort greater than the patient can perform with success. In primary spastic conditions there is naturally no indication for the treatment, since the element of ataxia is lacking. In general, hypotonic conditions of the muscular system, with accompanying inco-ordination, are the conditions which provide the essential field for this form of treatment.

Limiting, therefore, our consideration to tabes, it is at once evident that the different patients respond in widely different ways to treatment. A weak heart or highly sclerotic arteries are contra-indications except to the simplest form of exercises. A case under our care in which tabes was combined with exophthalmic goitre proved wholly impossible to treat on account of the circulatory conditions. Excessive adiposity is also a misfortune. Persons of small and slender physique are much less exhausted by the treatment and, therefore, regain co-ordinative power more quickly and permanently. Naturally, treatment of this mechanical sort is most successful in persons in good physical condition who have no handicap in the way of circulatory or other disorders. A very high degree of hypotonicity, especially if associated with Charcot joints, is naturally a complication.

In tabes the treatment may be instituted with hope of improvement at any stage of the disease, excepting the very latest. It is on the whole unusual for patients to present themselves in the pre-ataxic stage, and if seen at this early period of the disease it is at times difficult to impress upon them the importance of co-ordinative exercises when they have not been conscious of disturbances in locomotion. Two such cases are included in the series which make up the basis of this report, and one other was seen in consultation who has not undertaken the treatment. Of the two who accepted treatment one (Case VI), with the characteristic signs of tabes apart from inco-ordination, was sufficiently impressed with his future prospects to undertake with great faithfulness the prescribed co-ordinative exercises. The result was that after several months of treatment, faithfully carried out, he was able to show a higher degree of co-ordination than an ordinary normal individual. Such a patient, if he perseveres in carrying out the exercises, is sure to avert for a greater or less length of time the otherwise inevitable ataxia. The second case, although also without ataxia at present, has been so far impressed with the rationality of the treatment that, after a series of exercises under instruction, he has agreed to prosecute them further, although obliged to be entirely away from medical supervision for a number of months. It is unquestionably very desirable that the treatment be begun in the pre-ataxic stage or as soon thereafter as possible, and in these cases naturally the best results may be expected if the importance of the procedure can be sufficiently impressed. This is in many cases not difficult, due largely to the common knowledge possessed by the laity of the discomfort and conspicuousness of the ataxic stage.

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[2] Taylor: The amelioration of paralysis agitans and other forms of tremor by systematic exercises Jour. Nerv. and Ment. Dis., 1901, xxviii, 133.

Patients, however, usually present themselves, at a later stage, and often, in fact, when they are on the verge of complete incapacity. The problem here offered is naturally a very much more serious one, and the treatment must be correspondingly thorough and long continued. With these patients there is no difficulty whatever in impressing upon them the importance of the treatment. They have in most instances been treated by various drugs and other inefficient means, with the result that their discouragement is almost complete and their willingness to undertake a treatment promising amelioration increasingly great. The incapacity at this stage is also so extreme that the ordinary employments of life are interfered with and the patients therefore not only have the inclination, but also the time, to give to the required work. Most of our patients have been seen for the first time and treated in this stage, and with uniformly good results when the treatment has been followed conscientiously for a reasonable length of time. It is to be hoped that as this method of treatment becomes more widely known patients will be treated much earlier than is at present usually the case. It is altogether unfortunate if they are left to reach the helpless stage before the exercises are instituted. Even in these late cases, however, good results may be expected, and not infrequently it is possible to so far educate the co-ordination that persons previously confined to a chair may be able to walk to a certain degree. The exercises should, therefore, not be considered valueless even in the so-called paralytic stage of the disease.

ELEMENTS OF SUCCESS.

That the use of the Frenkel treatment has not always been attended with success is due in part to the unsuitability of the patients, which certainly in the case of tabes is rare, and more particularly to the careless and inadequate prosecution of the treatment, and to too great a confidence on the part of the physician that the patient is himself capable of directing his own treatment. To succeed, certain definite principles must be adhered to, as Frenkel has definitely pointed out in his comprehensive work on the subject.

First. — The instruction must be given in most painstaking fashion. This necessitates a teacher skilled in the method of treatment and preferably a person thoroughly acquainted with massage and physical training in general. This work, under ordinary circumstances, cannot be done by the physician for the reason that he has not the time and often not the knowledge which it definitely demands. Attention to detail is absolutely essential if results are to be expected. The patient must, from the outset, be impressed with the rationality of the treatment and with the absolute necessity of performing the various movements with the utmost possible precision. Slovenly methods are worse than useless and such methods can only be prevented by the constant, keen supervision of a teacher interested in the work.

Second. — Good results depend upon moderation. The tendency on the part of the patient, when once interested in the treatment, and particularly when he sees improvement, is to do too much. This is always detrimental, and it is a common experience to be obliged to warn the over-enthusiastic patient against this danger. The muscular effort connected with even simple movements properly performed is extremely great. It is, therefore, necessary that the pulse should be carefully watched and that the patient should rest frequently between the exercises.

Third. — The exercises, beginning gradually and with the more simple ones, must be carried out under the eye of the instructor for at least six months, and preferably for a year or longer. It is our custom to give the patient actual instruction three times a week, one hour at a time, with frequent intermissions for rest. In addition to these exercises the patient is instructed, morning and night, to go through certain prescribed movements by himself, care being taken not to prescribe more than he can properly perform without fatigue. In our experience there is no difficulty whatever in having these instructions carried out. When a certain number of the exercises are well mastered, both in the lying and standing positions, the visits of the instructor may become less frequent and finally the patient may with safety be thrown upon his own resources. He is by this time expert both in the principles and practice of the treatment, and may even be capable of elaborating the exercises still further without definite instruction. The exercises naturally must be continued indefinitely, inasmuch as the underlying pathological process continues to advance. The period of disability may by these means be somewhat indefinitely postponed.

Fourth. — The complete co-operation of the patient must be secured if the treatment is to prove a success. After the first few exercises, which require considerable tact on the part of the instructor, some signs of improvement are usually apparent, and, thereafter, there is small difficulty in keeping alive the patient's enthusiasm.

Fifth. The class system is useful and available in hospital practice. Three or four patients, either at approximately the same or at different stages of the disease, may, with much advantage, be given the exercises together. One patient may rest while another is going through certain of the exercises, and the fact of companionship proves a stimulus to the conscientious performance of the work. For about two years such a class has been maintained at the Massachusetts General Hospital with success. Several of the patients have been coming regularly for from one to two years and evidently take much pleasure in performing the exercises prescribed. New members may be added to the class from time to time, and those who have been longer under training may serve, in a measure at least, as teachers of the newer arrivals. In private practice naturally such a method is rarely, if ever, available. Its danger lies in giving the patients too much latitude and in trusting too far to their individual capacity to perform the exercises correctly. Naturally, this danger is lessened the longer the exercises are continued. The element, however, of strict personal attention to the individual case must never be neglected if the best results are to be attained.

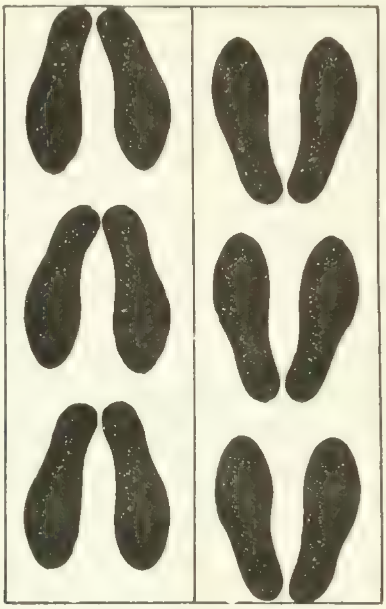

FIG. 1. Modified from Frenkel. Linoleum or canvas on which is painted footsteps, preferably in one series, instead of in two as here represented. The strip should be from 18 to 24 inches in width, and for persons of average height the distance between the steps 4 inches. For a very short person it should be less, and for an unusually tall person, more. The separation between the heels and the toes should vary somewhat, depending upon the personal idiosyncrasy of the patient. The patient is required as far as possible to adjust his steps to the footprints.

APPARATUS.

The appliances necessary for the treatment are easily made and do not need to be renewed. The essentials are, first, a couch. This may be of wicker with one end elevated and with a hard base of support for the body. (See Fig. 6.) Such couches are relatively inexpensive and may be easily obtained from any well-equipped furniture store. The disadvantage of such a couch is that its surface is very slippery, and the tendency, therefore, is for the patient to slip down while taking the exercises on his back or else to use considerable muscular energy to maintain his original position. This may be obviated by placing a piece of felt or some other rough material under the buttocks. If such a couch is used, this should always be done, since the patient requires all his strength and attention to perform the specific movement desired.

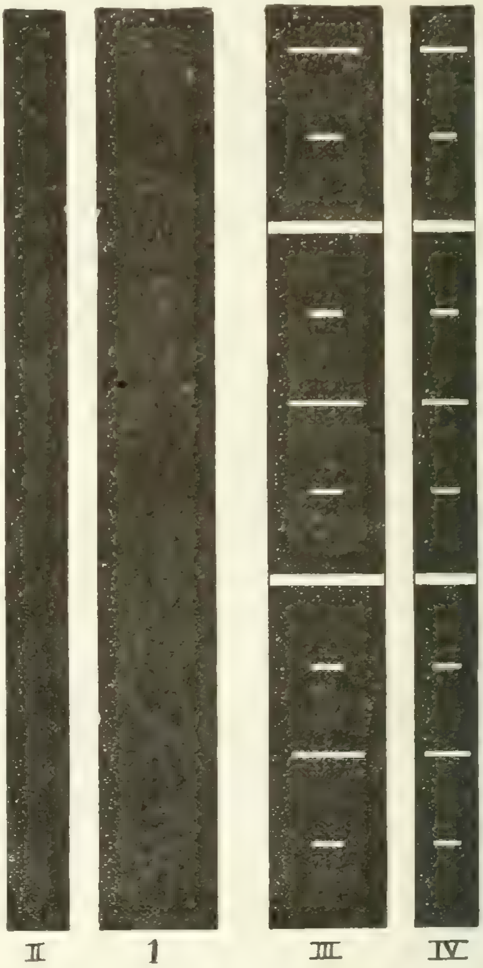

FIG. 2. Modified from Frenkel. I. Strip of linoleum or canvas, or painted directly on the floor, 9 inches wide and 10 to 15 feet long. II. The same, 4 inches wide. III and IV similar to I and II respectively, but with cross markings at intervals of 27 inches, a full step, and at 13½ and 6¾ inches, a half and a quarter step. The use of these strips is obvious, the demand for more perfect co-ordination increasing from the broad plain strip I to the narrow marked strip IV.

A better couch for the purpose is one put together of stout timber with the seat open. This should then be covered by a tightly stretched canvas which affords a non-slipping surface more satisfactory than that of the ordinary wicker couch of which we have spoken above. Such a couch as this may very easily be made by a carpenter of ordinary pine stock and serves the purpose on the whole better than any other apparatus. Particularly to be avoided is the ordinary couch, sofa or bed which is far too

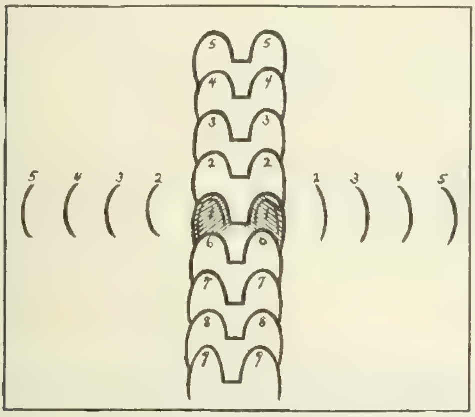

FIG. 3. Modified from Frenkel. Linoleum painted as represented, and the possible positions of the feet indicated by numbers. The patient standing at 1, 1, is directed by the instructor to place the feet in various positions as indicated by the figures. This is done at word of command, and is a very useful exercise of the later treatment. The distance between the vertical steps is 6 inches, and between the lateral, 5½ inches.

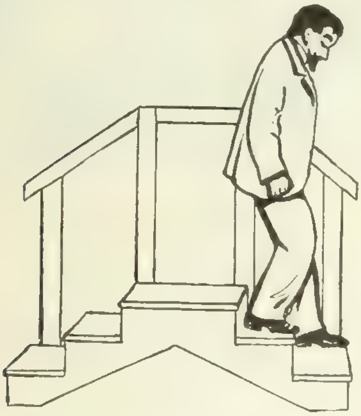

FIG. 4. Modified from Frenkel. Steps with railing for support. The treads are 6 inches in width and 9 to 11 inches long.

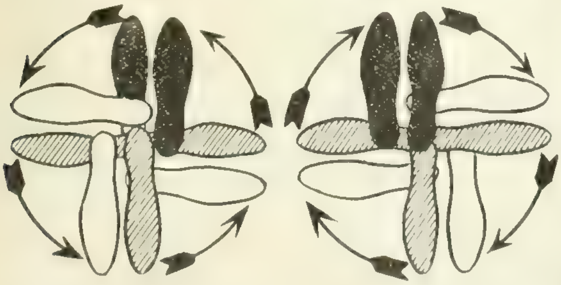

FIG. 5. Modified from Frenkel. Arrangement of steps for turning movements.

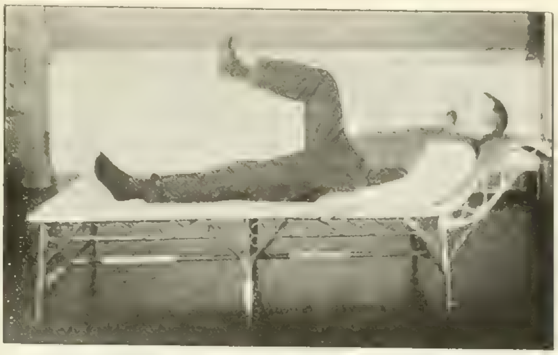

FIG. 6. Exposure, 10 seconds. Wicker couch used at Massachusetts General Hospital, showing performance of a free leg exercise in the recumbent position. The co-ordination is practically perfect, in spite of the awkwardness of the position.

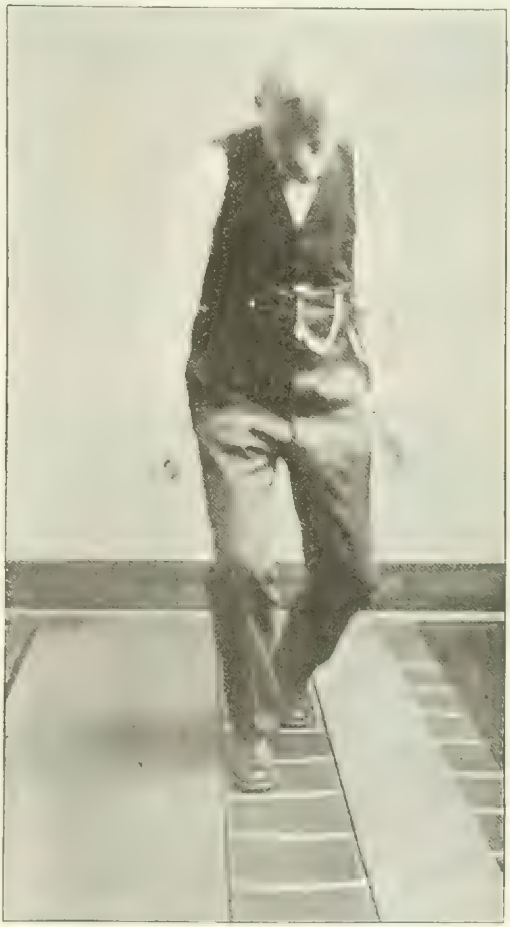

FIG. 7. Exposure, 10 seconds. Walking exercise on narrow strip, in steps of given length. The care and attention of the patient is well shown. The co-ordination is excellent. Massachusetts General Hospital.

In the walking exercises the knees should be well bent, and also the thigh on the body. The knees should be kept on a line with the toes.

yielding for the proper performance of the exercises. Such a couch as that described above is all that is required for the beginning exercises taken on the back. A little ingenuity, with perhaps a small expenditure of money, will easily provide this.

For the walking and turning exercises the apparatus required is equally simple. A strip of linoleum or canvas, approximately twenty feet in length and marked off in footsteps as indicated in Fig. 1, is requisite. In addition to this strips of two widths with and without cross markings at regular intervals, as shown in Fig. 2, are very desirable, if not absolutely necessary. A so-called Geneva cross, illustrated in Fig. 3, is an extremely useful piece of apparatus for the later exercises. A series of three steps, as shown in Fig. 4, or as a simpler device a solid box upon which the patient may step with safety is a useful adjunct to the treatment and gives opportunity for the somewhat difficult co-ordinative movements used in going up or down stairs. Many other devices of more or less complicated sort may naturally be used to assist in the training of the co-ordination. If, for example, the arms are ataxic, a board is useful into which many holes are bored, the patient being required to insert a peg into one or another hole, either by command or through an act of his own will. These details, into which it is not our purpose at this time to enter, are discussed at length in Frenkel's admirable book.

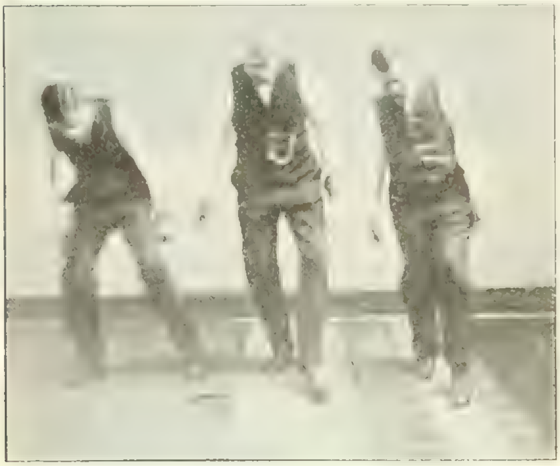

Fig. 8. Exposure, 10 seconds. Class work, Massachusetts General Hospital. Patient to the right is walking on a strip with cross marking, as in Fig. 7. Fair co-ordination. The center patient is walking on footprints, not clearly shown in photograph, one of the simplest of the walking exercises. Excellent coordination. The patient to the left is making a side step, a much more difficult movement. There is considerable inco-ordination, as clearly shown in the photograph.

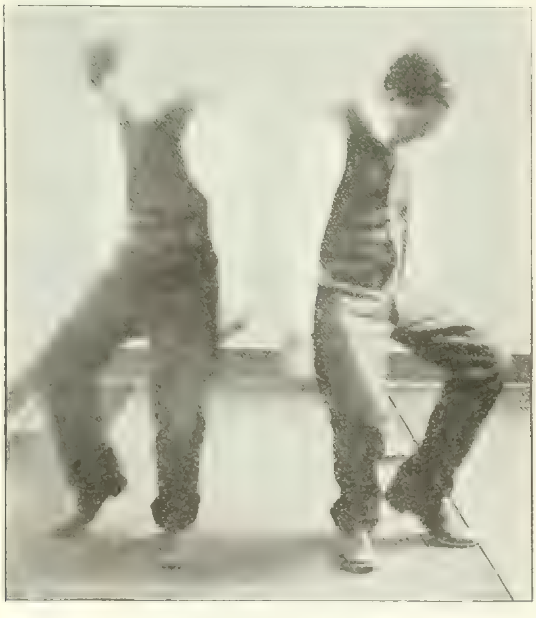

Fig. 9. Exposure, 10 seconds. Turning movements. Patient on the right has maintained good coordination. The patient on the left shows no great ataxia of the legs, but the upper part of his body is unsteady. Massachusetts General Hospital.

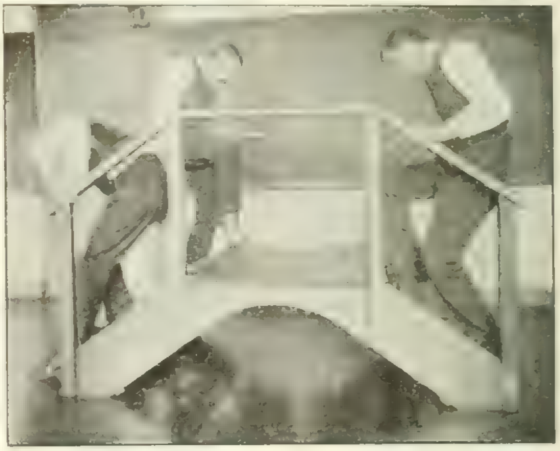

Fig. 10. Exposure, 10 seconds. Class work, Massachusetts General Hospital. Practice on the steps. The co-ordination is in general good. The care which the patients are taking is characteristic of all who are well taught.

The patients represented in this series of photographs were all highly ataxic when they first came under treatment, and all have been taking the exercises for upwards of a year. They are the nucleus of the hospital class.

METHOD OF TREATMENT.

As already indicated in some measure, the essentials to successful treatment are a training of the co-ordination in simple movements, going on to more complex, at first with all the assistance which can be gained by position of the body, use of the eyes and even artificial aids. It is not necessary to detail these movements, inasmuch as those originally suggested by Frenkel and pictured in his book have, so far as we are aware, not been improved upon. We call attention rather to the photographs (Figs. 6, 7, 8, 9, 10) of patients actually undergoing treatment, which illustrate better than words could do the means taken to improve the co-ordination and the success which attends the effort. The photographs were taken indoors and received an exposure of approximately ten seconds. It may, therefore, be seen how complete a co-ordination was obtained in those cases where no blurring of the image takes place. This is true in many instances. In others, however, it will be seen that a certain ataxia developed before the expiration of ten seconds, which it is not difficult to understand when one observes the difficult positions which the patients are attempting to maintain.

The result of our application of the Frenkel method in the treatment of tabetic ataxia has led to the following conclusions: that the method is equally applicable to hospital and private patients; that the class system is useful but must be guardedly used; that the moral effect upon the patients is admirable, leading to determined efforts towards perfecting themselves in the exercises prescribed; that the other symptoms of the disease — sphincter disorders, general sensory defects and pain — are indirectly benefited; that if the treatment be carried out faithfully under direction for six months or more definite improvement is sure to result unless complications set in or unless the patient presents himself for treatment at too late a stage; and finally, that this method of treatment, conscientiously carried out, should not be neglected or postponed in any case of uncomplicated tabes.

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PHYSICAL TRAINING OF GIRLS IN THE BROOKLINE HIGH SCHOOL.*

BY WALTER CHANNING, M.D.,
Member of the Brookline School Committee.

A SYSTEM of physical training has been gradually developed in the Brookline schools under the able and careful supervision of Mr. Hartvig Nissen. All pupils have had nine years of instruction before reaching the high school and are able to do a fair amount of apparatus work. This work is expanded and broadened to meet the requirements of the following four years and is in the direct charge of an expert teacher. In order that the physical condition of the girls may receive thorough attention and no exercises given which will over-tax the strength of the girls, a physical examination blank has been prepared by the Hygiene Committee of the School Board and the Physical Training Instructors, after a careful study of examinations made in the New York high schools, the Teachers' College and Columbia University, Dr. Meylan, head of the Physical Training Department in the latter having given valuable advice.

The blanks for the girls include measurements to determine lung capacity; chest girth and breadth; strength of back, chest, legs and arms, and carriage. The facts as to the general health are recorded, as well as the condition of the throat, nose, eyes, ears, skin, teeth, blood and so on. A separate physician's examination is made by a woman physician skilled in such work. This examination includes the heart, lungs and spine, with an opinion as to whether the girl should take a partial or complete course in physical training, or none at all.

It is evident that by pursuing a method such as the one outlined, a girl's actual physical condition can be accurately ascertained, which is most desirable as bearing on the work the girl can be expected to accomplish either mentally or physically in the school, and can serve as a basis for exercises which will tend to improve the general health, and also as a means for selecting games or sports which will not be injurious.

The school committee regret that a large number of girls have been in the habit of obtaining certificates from their family physicians asking that they be permanently excused from physical training because of disability. In the lower schools the same girls do not ask for excuses, showing that in most cases ill-health is not the real reason. The high school studies are exacting, it is some trouble to change the dress for the gymnastics, and with the sense of being more grown up and free, it is perhaps natural that many girls should be inclined to avoid work which they believe has no direct connection with their studies. It is almost too much to expect girls to appreciate the benefit to the health which is the object of the physical training.

The physical examination being made the present year, will help to correct these mistaken ideas, and will especially demonstrate to parents that their girls are losing a valuable opportunity for self-development if the high-school physical training is neglected.

It should be just as integral and vital a part of the high school work, as is any academic study, and worthy of counting two points, instead of one as is now the case. The objection that the curriculum is crowded is a serious one, but when parents realize how much healthier and happier and more useful their daughters will be in after life, if they receive four years of physical training such as we hope to make it, they will not rest contented until this objection is overcome. Parents, physicians and school authorities must work together to improve the methods of caring for the health of the children in the school. No question is more important, and yet up to a very recent period it has been almost entirely over-looked.

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Child Labor Bill to be Introduced. Senator Beveridge of Indiana has announced that he has prepared a bill to prevent the employment of children in factories, mines and other establishments, and intends to push it vigorously. The bill prohibits carriers engaged in interstate commerce from transporting or accepting for transportation the product of any mine or factory in which children under the age of fourteen are employed, and concerns affected by it will be required to make affidavit every six months to the effect that they have no children under the prescribed age in their employ, and have not had during the preceding six months. — *Medical Record.*

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* Read at a meeting of the Brookline Medical Club, Nov. 7, 1906.

EXAMINATION OF THE TEETH OF CHILDREN IN THE PUBLIC SCHOOLS, WITH A REPORT UPON THE EXAMINATION OF 700 PUPILS OF THE PIERCE GRAMMAR SCHOOL, BROOKLINE, MASS.*

BY WILLIAM H. POTTER, D.M.D.,
Professor of Operative Dentistry, Harvard Dental School.

The examination of the teeth of children in the public schools has as yet been carried out in but few places. Such an examination was in force in the city of Strassburg, Germany, in the year 1901, and in the city of Andover, Mass., in the same year. The desirability of such examination is a growing conviction in the minds of those who are giving most thought to the subject, and the reasons for this conviction are as follows:

1. Where examinations have been made a large number of defective teeth have been found.
2. Defective teeth cause the child much pain which interferes with general health and with the ability to study.
3. Defective teeth limit the child's ability to properly masticate food; this leads to indigestion and deficient nutrition. The physical progress of the body is retarded and the mental also.
4. An examination of the teeth gives the opportunity for advice as to necessary treatment and as to prophylactic care.

As a matter of special interest to this meeting I will describe in detail the examination of the teeth of the children of the Pierce School of the town of Brookline, which was undertaken in May and June of this year. I had the pleasure of organizing and directing this work. Dr. D. F. Spinney, Dr. E. N. Kent and Dr. E. B. Wyman, of Brookline, were associated with me and made all the examinations. In this examination the teeth of the children were divided into three classes namely, *good*, *fair*, *poor*. We called the teeth good which had no readily observable defects. Teeth were called fair which presented a few not very serious defects. Teeth were called poor which had *several serious defects* or *many small defects*. In order to facilitate the recording of defects there was employed a diagrammatic representation of the teeth of the upper and lower jaws in which each tooth bore a number and each surface was also numbered. Thus one or more defects in a given tooth could be quickly recorded by the use of a large numeral to indicate the tooth in question and one or more small numbers placed in the position of exponents; these small numbers indicated the surface or surfaces of the given tooth which were defective. For each examining dentist there was appointed a pupil to record the results of the examination. By calling off a series of numbers to the recorder the examiner could quickly register the defects in a given case. In this way the examiner's time was economized in that none of his time was wasted in clerical work.

Besides having a recorder for each examiner we had a person to wash and sterilize instruments. This part of the work was very carefully attended to. There were furnished plenty of boilable mouth mirrors and examination points and each instrument was carefully washed and boiled after each use. With this accurate subdivision of work and economy of time three examiners were enabled to examine in all about fifty pupils in an hour.

So much as to the detail of the work. As to the results of the examination they were as follows:

Number of pupils examined, 700; teeth found in good condition, 166, 23%; teeth found in fair condition, 179, 25%; teeth found in poor condition, 355, 50%.

These results will bear out the statement which I made in the beginning, namely, that where examinations have been made a large number of defective teeth have been found. In order to turn this examination to a practical account the following card was issued to the pupils examined:

OFFICE OF SCHOOL COMMITTEE, BROOKLINE, MASS.
.................................190

NOTICE TO PARENTS.

..................................has been examined by me and found to have teeth which need attention. You are advised to take h to your family dentist for further examination and for treatment. If circumstances do not permit consulting a dentist at his office, the child may be treated at a nominal cost at the Harvard Dental School Infirmary, North Grove Street, Boston, or at the Tufts College Dental School Infirmary, 1416 Huntington Avenue, Boston.

........................D.M.D.,
(OVER) *Examining Dentist.*

DIRECTIONS FOR THE CARE AND USE OF THE TEETH.

1. The teeth should be thoroughly brushed after each meal.
2. A tooth powder used on the brush helps to clean the teeth.
3. Candy and crackers should not be eaten between meals; they cause the teeth to decay.
4. The slow and thorough chewing of hard food helps to preserve the teeth and keep the mouth in a healthy condition.
5. Children's teeth should be examined by a dentist at least twice a year.

To pupils whose teeth were called "good" a card was given on which was printed the "Directions for the care and use of the teeth *only*."

If examinations of the teeth as here described can accomplish an improved condition of the teeth of the children in the public schools, its value will not, I believe, be questioned by any one. Sound teeth, good digestion, good nutrition and general good health usually go together, while poor teeth, poor digestion, under nutrition and development usually go together.

Here let me refer to one of the best articles which I know of in regard to the examination of the teeth of school children. It was written by Mr. G. E. Johnson, Superintendent of Public Schools, Andover, Mass., and entitled "The Condition of the Teeth of Children in Public Schools," and printed in the *International Dental Journal*, July, 1901.

In speaking of data which he had collected he says:

"The weight of boys with good teeth was compared with the weight of boys with poor teeth at each age from five to fourteen, also the weight of girls with good teeth with the weight of girls with poor teeth of corresponding ages, there being twenty groups in all. The children with good teeth surpassed children with poor teeth in weight in fifteen out of twenty groups.

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* Read at a meeting of the Brookline Medical Club, Nov. 7, 1906.

"Combining the averages of children with good teeth for all ages and the averages of children with poor teeth for all ages, the children with good teeth surpassed the children with poor teeth in weight by an average of 2.7 pounds per child."

I also wish to call attention to an article published in the *Deutsche Monatsschrift für Zahnheilkunde* 6 March, 1901, by Dr. Ernst Jessen, in which he describes the system established in the city of Strassburg, Germany, by which 16,000 of the school children of that city had a yearly dental examination and were treated in the dental department of the University of Strassburg. Of this article I wrote a synopsis and it was printed in the *International Dental Journal*, July, 1901.

There are several conclusions which I would make in regard to this work.

1. I believe it is very desirable that once a year the teeth of all children in grammar schools be examined and their condition reported to parents with appropriate advice.

2. This examination should, preferably, be made in the fall of the year soon after the opening of school. At this time the infirmaries of the Dental Schools can best take care of such pupils whose circumstances do not allow them to consult a dentist at his office.

3. Short, practical talks to school children would help much to increase their intelligence as to the value of good teeth in promoting nutrition and general health, and would interest them in the condition of their own mouths. These talks should be given by a dentist, but much supplementary work of the same sort could well be given by the teacher.

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A REPORT ON THE EXAMINATION OF THE EYES OF 420 SCHOOL CHILDREN IN THE TOWN OF BROOKLINE.*

BY ROBERT G. LORING, M.D.,
Clinical Assistant, Massachusetts Charitable Eye and Ear Infirmary.

I HAVE to present a report on my examinations of the eyes of some of the school children in the town of Brookline. My work was done at the Pierce School, and I examined four hundred and twenty children, including all grades above the primary. The object of this examination was to find out the number of children with defective eyesight, how many of these could be helped, and how many were, therefore, in need of further examination and treatment. Incidentally, some interesting data were collected with reference to the relation between poor eyesight and poor scholarship in school children.

The work was done necessarily under some difficulties, as more apparatus is required for the most certain results than ordinarily can be carried and set up in the schoolhouse. For the careful determination of refractive errors in children, relaxation of the accommodation is of course necessary, and sometimes it is only with a mydriatic that any errors of refraction can be demonstrated. Nevertheless, in the majority of cases all marked degrees of farsightedness, nearsightedness, or astigmatism can be readily discovered, and careful questioning of the child will show the presence or absence of symptoms pointing to eye strain.

The method pursued was as follows: Each child was carefully tested for vision with the ordinary vision card for his ability to read small letters across the room, and was questioned as to the presence of headache, pain in the eyes, or discomfort during or after study. The teacher was asked to state whether the child held the book too near in reading or made any complaint about his eyes. Ability to read the small letters across the room is not, however, a proof that the eyes are normal. Each child was, therefore, examined by the electric retinoscope in a darkened room. This has not been used up to now in the examination of school children, so far as I know, but it has the great advantage of being a purely objective method, by which the refraction of the eye is measured without relying at all upon the statements of the child. Cards for each child were printed, and on these was written the name and age, the vision, the estimated refraction and such symptoms as were found present, and later the child's mark in scholarship.

In general, I found the children in the Pierce School free from the chronic inflammatory diseases, such as conjunctivitis and blepharitis, which are so commonly found in our large city schools filled with children from the tenement districts where the hygienic conditions are bad. There was no trachoma, no phlyctenular disease, and almost no follicular catarrh and only one case of keratitis.

But of course the point of special interest was the question of refraction, *i. e.*, the frequency of far- and near-sightedness and astigmatism. I found that 19 out of the 420 children were already wearing glasses, but it appeared from the examination that many more were in urgent need of some relief, either from poor sight or from pains in the eyes and headache.

The children ranged in age from eight to sixteen years, were boys and girls, and included all the grades above the primary. The results were naturally rather hard to tabulate, but in order to make the statistics of practical value, I divided the children into three main classes. In the first class I put all those who saw perfectly on the test card across the room, *i. e.*, who had technically 20-20 of vision, who showed no errors of refraction by the retiniscope, and were not suffering from any symptoms from the use of their eyes. These I called the perfect children, and the first interesting fact was that these were not by any means a majority, in fact less than one half qualified for this class, *i. e.*, only 167 out of the 420 children. The remainder had either more or less imperfect vision or some symptoms of eye strain, but many had only slightly imperfect eyes or slight symptoms. I therefore divided them into two classes, first those having only slight amounts of farsightedness, nearsightedness or astigmatism, which I call class two; and lastly those having quite defective vision or really troublesome symptoms, which I put in class three. Those in class two, with only slightly imperfect eyes, numbered 155, and were therefore nearly as many as those who passed as perfect; while those with really defective sight or troublesome symptoms numbered 98, or 23%. I tried to exclude all cases not rightly belonging in this class. Some uncertainty must be admitted in the vision test in lazy or inattentive children, and there is even more uncertainty about a child's statements regarding pain and headache in the use of the eyes. Making, however, allowance for errors on my part, fully 20% of all the children had evidently poor vision, or showed by the retinoscope a marked refractive trouble, or gave a clear history of eye strain.

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* Read before the Brookline Medical Club Nov. 7, 1906.

These cases in class three of really defective eyes were in detail as follows:

Thirteen were aggravated cases of mixed astigmatism and were in urgent need of relief, the vision being greatly reduced.

Eight were high degrees of nearsightedness, over two diopters, and were in equally bad condition as regards seeing, and five more had lesser degrees of nearsightedness, also with poor sight in the distance.

Nine had high degrees of farsightedness, over two diopters, of which four gave very definite histories of headaches in school during study, and three the history of blurring and pain in the eyes in study.

Eighteen had evident degrees of farsightedness of at least between one and two diopters. The vision was generally fairly good, but not normal, and eight of them had frequent headache in school or at night when studying by gas light.

Ten had evident farsightedness with astigmatism, and all gave a history of eye strain or had diminished vision.

Nineteen had less than half vision, technically 20-40 or less, and generally some refractive error tested with the retinoscope and some symptoms of eye strain.

Twenty-one had nearly perfect vision when tested by the ordinary card, but showed with the retinoscope farsightedness or astigmatism, and gave marked history of eye strain, that is, headache in school or at home when reading at night, watering of the eyes at study, or pain or redness in the eyes on close application, and these cases were all referred for careful treatment.

These children were, in my opinion, in decided need of furthermore careful examination of their eyes under a mydriatic for the relief of their symptoms. What their treatment would be would depend on the results of the exact examination and should be decided for each case individually, with due regard to the conditions in each case. Where the eyes show the effects of strain, less study and book work, more exercise, more sleep and better hygiene generally are the remedies *par excellence;* but in the majority of cases there is a refractive error at the bottom of the trouble, and the child is, in consequence, under a real physical handicap in doing his work, and should have carefully adjusted glasses, at least for study. Such children may see well enough when tested by the vision card alone, but they are in reality using up an extra amount of nervous force, and they show, in consequence, the typical symptoms of eye strain, namely, headache or pains in the eyes after or during study, or often merely a general nervousness or restlessness in school, or the inability to hold the attention on any task requiring the fine use of the eyes. Such children are often called dull or stupid. For instance, suppose a child has three diopters of farsightedness, not an uncommon amount. He can and generally does see clearly in the distance, but in order to do so makes the same effort every waking minute of the day that a normal child would make if he were required to hold a printed page at thirteen inches from the eye and keep it clearly focussed. It is easy to imagine the nervous wear and tear after a few weeks or months. The wearing of properly fitted glasses removes this strain, and the headache and pain disappear and the child does his school work with comfort and without wasteful and unnecessary nervous effort. The treatment of these defective children is not, however, the point of special interest here. My object is only to make clear the usual symptoms of eye strain, and show their frequency among a large number of average school children.

One point in this subject of the eyes of school children interested me especially, *viz.*, the relation between refractive errors in children and their standing in scholarship. In order to get some data on this point, I sent the record cards of each child to its teacher and asked her to indicate its mark in scholarship. I found the children were marked with one of five grades: excellent, good, fair, unsatisfactory and poor. Dividing the children again into my three divisions, first those with normal eyes, secondly those with little refractive error and fairly good sight, and thirdly those with large refractive errors, poor vision, or troublesome symptoms, I found that a great majority of the good students belonged to the first two classes, especially the first, and that a majority of the poor students belonged to the third class. For instance, out of all the children, 86 reached the grade of excellent, and 43, or one half, belonged to the class with perfect eyes, while the third class of defectives furnished only 12; or in other words, 50% of the excellent had normal eyes, and only 14% of the excellent came from class three with defective eyes. In the middle grades of scholarship the figures were less striking, but as before the majority of the good scholars came from the first two classes with perfect or nearly perfect eyes. For instance, among 137 marked good in scholarship, more than two thirds came from the first two classes, and less than one third from the third class. In the same way among those marked fair, 52 of the normal reached this grade against 28 from the deficient. On the other hand, in the lowest grades of scholarship, the defective eyes were the majority. Among 38 marked unsatisfactory, only 4 were normal as to vision, and 15 were from the third class; and in the lowest grade of poor, 42 in all, twice as many had deficient eyes as were normal.

Of course, many allowances must be made in these results for the individual variations in the children in industry and intelligence, but I think these figures strongly suggest that refractive errors and the latent symptoms of eye strain do account for a large part of poor scholarship, and that a large number of poor scholars are probably suffering from defective eyes, though often having good vision. This is a matter of everyday experience to the oculist. Children are constantly being brought who have good enough vision when tested in the ordinary way, but complain of difficulty in doing their school work, and on examination with a mydriatic are found to be suffering with marked degrees of farsightedness or astigmatism, and with proper glasses return to their work without further trouble. Even adults often suffer from marked symptoms of eye strain without being conscious that their eyes are the things chiefly at fault, and this is much more common among children. In this connection it should be understood that the recent act passed by the legislature,[1] providing for the examination of the vision only of school children by the *teachers*, while a step in the right direction, will in itself be quite inadequate as a means of finding out all those who are in reality suffering from eye strain.

I found in comparing the results from the lowest to the highest grades that the proportion of the normal children gradually fell off; for instance, in the fourth grade, one half of the children qualified for class one, that is, had normal eyes and complained of no symptoms, while in the highest grade the majority belonged to the second or slightly defective class, and the number in rather urgent need of further examination and treatment equalled the number that were perfect. This coincides with the results of other examinations that have been made among school children, namely, that with advancing education the proportion of normal eyes steadily diminishes and we find an increasing number of nearsighted and astigmatic children. Cohn found in the examination of several thousand children in the schools in Breslau that the normal or model eye was rare, that the farsighted and nearsighted were in the large majority, and that nearsightedness especially tended to increase. In the elementary schools, 6% were nearsighted, in the Latin schools 26%, and in the university 59% of all the students. And similar results have been found here, though the average was much better. Among my cases 3% were nearsighted, and 3% had mixed astigmatism.

To sum up my results: Among 420 children, 167 were classed by me as normal, having perfect vision, no ocular symptoms, and no perceptible refractive errors; 155 had little refractive error, good vision and slight symptoms not sufficient to need treatment; 98 had either less than half vision, troublesome symptoms or marked refractive errors, and were mostly referred for further examination.

I found an increasing number of defective eyes in the higher grades, and a majority of normal eyes among the good students, and a majority of defective eyes among the poor students.

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AURAL AND NASAL EXAMINATIONS OF SCHOOL CHILDREN.*

BY D. HAROLD WALKER, M.D., BOSTON,

Assistant Aural Surgeon, Massachusetts Charitable Eye and Ear Infirmary.

THE importance of the examination of the hearing of school children has been recognized in this country only for the last few years, and but recently has it received the consideration it deserves.

In Germany, through the work of Bezold published in 1885 and also that of Kafemann in 1890, the subject was brought to the attention of the public and since then a great deal of investigation has been carried on.

The importance of perfect breathing, which means full development of the nasal fossæ and perfect ventilation of the accessory sinuses and of the middle ear, has been appreciated for some time, but the effect on the scholarship of children suffering from adenoids or nasal obstruction has been more or less overlooked.

In the average public school, there is always a certain number of children who seem inattentive or are considered stupid. There is also a certain number who must be placed in the front row, and every physician who serves in a large aural clinic has seen children who have been sent to the hospital by an observant teacher, who had noticed that the child watched the teacher's lips or had a discharging and foul-smelling ear.

Considering the above facts, it was thought advisable to make an experiment in order to gather data and, if possible, form some idea as to the best methods for a systematic aural and nasal examination. Therefore the School Board and the Committee on Hygiene in the town of Brookline decided to undertake an experimental examination of the public school children, and for that purpose the Pierce School was chosen.

The children of the upper grade were selected because of their ability to give intelligent answers. The method employed was as follows. The large laboratory was used, the floor being marked in foot spaces up to twenty-five feet. The child was placed in a revolving chair at the first space. The drum membranes, the nose and throat were examined and the condition noted. The hearing was tested by a whispered voice which could be heard by the average normal ear at a distance of twenty-five feet, and a spoken voice with thirty-five feet as the normal limit. The child was placed so that the ear to be tested was toward the examiner, the opposite ear being tightly closed by the forefinger. Numbers from one to one hundred, words and short sentences were used, and the distance at which the child could repeat what it heard, was recorded. Catalogue cards were procured bearing the child's name, grade, etc., having spaces for notes on the examination of the nose and throat and the hearing. In recording the hearing the distance the voice could be heard by a normal ear was used as the denominator and the actual distance the child heard the normal voice, the numerator. As, for an example, a child hearing the voice at fifteen feet, would be recorded as $\frac{15}{25}$, or if heard at five feet, $\frac{5}{25}$.

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[1] Acts and Resolves of the Legislature of 1906. An act relative to the appointment of school physicians, chap. 502, sections 5 and 6.

* Read before the Brookline Medical Club, Nov. 7, 1906.

In the same manner, if the spoken voice were used the denominator would be thirty-five and the distance heard, the numerator. The presence of adenoids was determined by the hearing test, the condition of the drum membranes, whether retracted or not, etc., and the general facial expression. The digital examination and the general use of the mirror were impracticable. The number of children examined was 289 and the results are as follows:

Total number of children having hearing of two-thirds of normal or less ($\frac{16}{25}$), 68 or 23%; total number having hypertrophied turbinates, 10; total number having septal spurs, 35; total number having deviation of septum, 8; total number giving evidence of adenoids, 89 or 30%; total number having hypertrophied tonsils, 63 or 21%; total number showing result of chronic suppuration of the middle ear, 15; total number having discharge from ear, 3.

All the children having but two thirds of normal hearing or less, and all those who gave evidence of adenoids and enlarged tonsils were given forms to take home. These requested the parents to take the child to their general practitioner for treatment or for reference to a specialist. It was interesting to note in almost every case of one sided nasal obstruction and deafness, that the degree of deafness was greatest upon that side. This tends to prove the theory that even if there is sufficient ventilation in the naso-pharynx, any nasal contact or obstruction may cause an irritation of the vaso-dilator nerves, causing a congestion of the mucous membrane of the Eustachian tube and the middle ear, which results in a fibrous thickening.

In comparing the hearing tests with the scholarship, it is found that of the pupils marked with the grade of "excellent," 17% showed diminished hearing. Of those marked "good," 20% showed diminished hearing. Of those marked "fair," 30% showed diminished hearing. Of those marked "unsatisfactory," 52% showed diminished hearing. Of those marked "poor," 42% showed diminished hearing.

In carrying out these experiments at the Pierce School, it was interesting to note the great enthusiasm of the principal and the teachers, which seems to have justified the recent appointment of teachers in general, for the examination of the sight and hearing. It is seen by the above results that there exists a very important relation between the scholarship and the hearing and it is to be hoped that parents with children deficient in sight or hearing will appreciate the importance of such deficiencies and will do all in their power to remove them. In cases where parents are careless or decline to provide proper treatment, there should be some provision made to enforce this, in order that the child may be able to take advantage of the opportunities offered by our public schools.

Medical Progress.

RECENT PROGRESS IN DIABETES.

BY ELLIOTT P. JOSLIN, M.D., AND HARRY W. GOODALL, M.D., BOSTON.

FERMENTATION AND PHENYLHYDRAZIN TESTS.

None of the tests for sugar in the urine are entirely satisfactory but the fermentation test appears the best for the general practitioner. Pflüger [1] raises objections to its accuracy, but Salkowski [2] and Rosenberg [3] defend it. Salkowski claims that by its use 0.1% sugar can be surely detected. If the urine is alkaline a crystal of tartaric acid should be added, and the urine quickly boiled and cooled and the yeast then put in. It is a good plan to always add the tartaric acid. It may be necessary to test the yeast from time to time, and the complete fermentation of the sugar should always be determined at the close of the experiment. The ordinary specific gravity bulb has an error of several degrees, so that one only obtains approximate results when the difference in specific gravity is multiplied by the constant 0.23.

McEwen [4] has shown that both the typical crystals as well as the thorn apple crystals, obtained by the phenylhydrazin test, can be removed by previous fermentation of the urine with sugar. This test is so accurate that by its use traces of sugar can be demonstrated in practically all urines.

FLUORESCENCE OF DIABETIC URINE.

Schilling [5] refers to earlier literature on the fluorescence of the urine in severe diabetes. This appears when 5% of formalin has been added to the urine and more quickly if a temperature of 50° to 60° Centigrade is maintained. He has never found it when the percent of sugar was between 0.5% and 2.5%, but with urines with 4% or more. In one case with 5.4% sugar, it was apparent even after twelve hours at room temperature, and in this case death occurred two months later in coma. The fluorescence gradually increases, and exists unchanged for days and weeks. It is, however, not invariable in urines containing over 4% of sugar. Schilling was able to show that the fluorescence was not due to sugar, acetone, di-acetic acid or B-oxybutyric acid. It appears dependent upon some unknown coloring matter, the discovery of which seems worthy of effort. Albumin and bile were absent.

INCREASED VISCOSITY OF BLOOD IN HYPERGLYCEMIA.

Burton-Opitz[6] has found the viscosity of the blood increased in hyperglycemia, and has been able to produce this increased viscosity by the injection of solutions of glucose. The increased viscosity so produced is transitory, and the specific gravity of the blood changes simultaneously.

DIABETES AMONG RAILROAD EMPLOYEES.

Narane[7] has studied the frequency of diabetes mellitus among the seventy-one thousand persons employed during the last ten years by the Paris, Lyons & Mediterranean Railroad Company. Eighty-seven hundred and ten (4,590 engineers and firemen, 4,120 guards) were engineers, firemen and guards, while 62,200 were stationary employees. The total number of cases of diabetes was 222, or 3 per thousand; 112 belonged to the traveling class and 110 to the stationary class. In other words the incidence of diabetes among the engine drivers and stokers was 12.63 per thousand, and among the guards 13.10, while for the rest it was 1.76 per thousand.

HEREDITY.

Naunyn found heredity in 20% of his private cases, but only in 4½% of those seen at hospitals. Loeb[8] shows that where heredity is present, the disease is as common in women as in men, while usually there are three males to one female affected. Among Jews the disease is as common with women as men. The hereditary form appears after forty, seldom in childhood. Naunyn showed that it occurred earlier in successive generations. Loeb found the onset insidious, the course benignant for many years, little or no acetone, but an early appearance of arteriosclerosis. Danger lies in intercurrent affections and arteriosclerosis rather than coma. The seat of the trouble is in the nervous system rather than in the pancreas.

COHNHEIM'S EXPERIMENTS UNCONFIRMED.

It will be remembered that Cohnheim[9] showed that the juice expressed from muscle alone destroyed little or none at all of the grape sugar which was added to it, and that the same result was obtained with pancreatic juice similarly expressed. On the other hand a mixture composed of the juices obtained from both organs caused considerable quantities of sugar to disappear in a short ime. Somewhat similar results were obtained by Arnheim and Rosenbaum.[10] Klaus and Embden,[11] however, were unable to confirm his results and conclude that these were brought about by some external disturbing factors.

MINKOWSKI'S EXPERIMENTS REPEATED BY PFLÜGER.

Pflüger[12] has repeated Minkowski's experiments on extirpation of the pancreas, with the help of a surgeon Professor Witzel, an anatomist Professor Nussbaum, and the pathologists Professors Ruge and Fisher. He finds that the success of the removal of the pancreas depends on feeding the dogs as large a quantity of albumin as possible and very little fat. Boiled codfish answers the requirements because in the winter and spring it contains no glycogen, no glucosides and only traces of fat. Since Lüthje's experiments on the pancreatic diabetes of dogs proved that these excreted more sugar than could be stored up in the body as glycogen or obtained from the food, one is forced to conclude that the sugar must have been formed out of fat or albumin. The excreted sugar, however, did not exceed what theoretically could have been obtained from the fat stored up in the organism. It is worthy of note that, notwithstanding the most abundant albuminous diet, the body wastes to a skeleton, just as with death after prolonged starvation, and only the brain and heart are spared. There is an essential difference, however, in diabetics, since in these cases the fat disappears even in those formerly most obese. Further the liver of diabetics exceeds tremendoulsy the percentage weight of that of healthy persons. The diabetic liver amounts to even 5% of the body weight, while in extreme inanition it is little more than 1%. This abnormally large diabetic liver has a normal chemical composition, behaves, in fact, just as the brain and heart of a starved person, due, according to Pflüger, to the excessive work thrust upon it, and even lives at the expense of other organs. In fact, the liver is that organ of the diabetic in which after death the most fat is found except in the brain.

The amount of water in the muscles is generally increased, but the nitrogen and ash contents of the dried muscles give normal worths. Denaturization of the albumin cannot, therefore, take place. Pflüger failed to confirm Minkowski's opinion that the excreted quantity of sugar is proportional to albuminous metabolism.

The most probable explanation of diabetes depends on the supposition that the formation of sugar is the work of the cell substance of the liver, by which not only glycogen but also fat are changed over into sugar. Each excitement of the liver cells increases the formation of sugar. Further, this is caused by innervation, carbon oxide, phloridzine, adrenalin, or any other poison which works directly on the liver cells. If great quantities of albumin or fat are administered, it has been shown that the liver almost alone must work over all the nitrogenous derivatives of albuminous metabolism. The cell substance, therefore, reaches so much greater activity the greater the amount of albumin there is forced upon it, and thus the sugar-forming power of the liver increases through synergy. This corresponds also to the great increase of sugar excretion which Pflüger has observed after the administration of ammonium carbonate.

Extirpation of the pancreas causes a very notable weakness of gastric digestion, which is perhaps due to the premature expu'sion of the food from the stomach into the intestines. Pflüger also noticed that feeding with neutral soaps resulted in marked diminution of glycosuria, with sumultaneous reappearance of an alkaline reaction of the urine, not caused by carbonic acid salts. In his cases polyphagia was never observed and generally no polydipsia. Pflüger's publication gave rise to several articles by Minkowski, to which he replied.

RESPIRATORY EXPERIMENTS.

Magnus Levy[13] found that the metabolism of diabetics, as determined by respiratory experiments, did not essentially differ from that of healthy persons. In many patients with severe diabetes the gas exchange during and after rest appeared somewhat to exceed the normal average. This does not imply that it would exceed that of a healthy person for twenty-four hours, because the bodily activity of severe diabetics is low. The view expressed by Naunyn and Kolisch[14] that many severe diabetics require less nutriment than normal persons must be confined to special periods of the disease. Von Noorden[15] has met with no evidence pointing to a lowering in metabolic requirements.

Magnus Levy shows that while the respiratory quotient on an exclusive carbohydrate diet is 1, on an exclusive albuminous diet between 0.8 and 0.809, on an exclusive fat diet 0.707, the quotient for a healthy person on a diet free from carbohydrates, but made up of 15% of albumin and 85% fat, sinks to 0.720. Under normal conditions it does not generally fall lower, but would necessarily fall if, in a severe case of diabetes, when the body is relatively poor in oxygen, a substance richer in oxygen than albumin, namely, carbohydrate, is excreted. This in fact takes place, as is shown by the respiratory experiments of Magnus Levy, Leo and Weintraud. Thus these authors all obtained in severe diabetics a respiratory quotient varying from 0.665 to 0.740. Though these experiments indicate that some substance richer in oxygen than either albumin or fat has been formed in the body, it does not prove from which one of these groups the sugar has originated. Pflüger,[16] however, does not agree to the accuracy of Magnus Levy's conclusions, but he[17] acknowledges that Lüthje's experiments have convinced him that glycogen is not the only source of sugar in diabetic dogs.

NUCLEO-PROTEID IN SPLEEN CONTAINS A PENTOSE.

Levene and Mandel[18] have obtained a nucleoproteid body from the spleen which contains a carbo-hydrate group presenting the reactions of glucothionic acid. It reduces Fehling's only after previous hydrolysis with a mineral acid, and then gives a pronounced reaction for pentose with the Orcin-HCl test.

EVIDENCE FAVORING A FERMENT AS CAUSE OF DIABETES.

The work of Baumgarten[19] points toward the probability that the diminished sugar metabolism in diabetes is dependent on a ferment, and adds renewed hope to the possibility of the treatment of the disease along this line. He argues that the diminished destruction of sugar in diabetes can depend on only one of two causes,— a lowering of oxidation or a disturbance in the breaking up of the sugar molecule. A lowering of oxidation has not been proven. He therefore studied the power of assimilation of the body for the products set free in the decomposition of sugar, and found that the diabetic individual was able to oxidize these products just as well as a healthy person. The substances tested were D-gluconic acid, D-sucric acid, mucic acid, glycuronic acid, succinic acid, D-tartaric acid, salicylic aldehyde and vanillin. Since the diabetic shows no disturbance of total oxidation, and no disturbance in the oxidation of the numerous bodies closely related to sugar, it would seem probable that some difficulty must exist in the breaking up of the original sugar molecule. In all probability this breaking up is a fermentative one, and this would seem reasonable from the fact that the removal of the pancreatic gland causes diabetes. Since the diabetic organism cannot assimilate some of the decomposition products of carbohydrate metabolism, perhaps one of these can be found which, introduced into the system, will diminish the formation of acetone without the attendant harm which the ingestion of the whole carbohydrate molecule entails. Such a body in fact is gluconic acid, but its cost renders it inapplicable for general use.

AMINO-ACIDS A SOURCE OF SUGAR.

It has long been considered by most observers that sugar can be formed out of albumin,[20] but the exact part of the albumin molecule which leads to this formation remained undetermined. The sugar evidently did not come from the carbohydrate moiety of the molecule, because such an albumin as casein,[21] which contains little or no carbohydrate group, caused in diabetes an elimination of much sugar. Another source was sought for and found in the amino-acids contained in the albumin molecule. Leucin was the first of the amino-acids shown to bear this relation, and later this was proven by Almagia and Embden[22] for alanin, and now Mohr[23] has shown the same for glycocol. The administration of these bodies increased the excretion of sugar in a diabetic animal, but such experiments are not fully free from criticism. Mohr has taken advantage of the hippuric acid synthesis to study this question more closely. He fed benzoic acid; this pairs itself chiefly with glycocol, and so is able to remove glycocol from the diabetic organism. If a part of the excreted sugar is formed out of glycocol, then the total excretion of sugar must be less, other conditions remaining the same, when benzoic acid is given. The positive result of this experiment confirmed the belief that sugar could be formed out of glycocol, and thus out of amino-acids.

Applying a similar method to the study of the formation of sugar from fat, Mohr fed dogs, made diabetic by the removal of the pancreas, fatty acids, which in such animals would be only absorbed in combination with glycerin. If sugar is formed from glycerin, then the excreted volume of sugar must decrease if glycerin combines with the fatty acids, but such a result was not obtained. Schmid[24] repeated this experiment on phloridzin dogs. The proportion of dextrose to nitrogen in all of his experiments was lower than that given by Lusk, and the administration of the fatty acids lowered the excretion of sugar, but simultaneously the excretion of nitrogen was lowered, evidently due to the sparing action of the fat on the albumin. Since the dextrose nitrogen proportion fell evenly, no argument could be drawn as to the formation of sugar out of glycerin.

Embden has found that if the organism is over saturated with an inactive amino-acid (alanin) administered by the mouth, a part of the acid would appear in the urine in an optically active form, L-alanin, that part of the racemic body which does not occur in nature. It appears, therefore, that this process of metabolism which we have been accustomed to consider as an oxidation process shows quantitative relations and figurative selection. Bergell and Blumenthal[25] have observed differences in this regard between advanced diabetic cases and those of moderate severity. They have given 10 to 15 gm. of inactive, and sometimes also active, alanin to a patient with severe anemia, to a patient in the last few days of life, and to two diabetics of moderate severity, and been unable to obtain the greater portion of the derivatives of the amino-acids in the urine. When 15 gm. inactive alanin were given to a patient in diabetic coma a strong reaction was obtained in the urine, and it was proved that D-alanin was present. They, therefore, conclude that the advanced diabetic after the adminstration of inactive alanin excretes D-alanin.

ACETONE FORMED IN THE LIVER FROM AMINO-ACIDS.

Embden and Kalberlah[26] have made a distinct advance in our knowledge of the formation of acetone. Almagia and Embden[27] found a volatile iodoform producing substance, after artificially perfusing the liver with normal blood. Embden and Kalberlah have now shown this to be acetone. While the perfused liver showed the formation of acetone, muscle, kidney and lung failed to produce it. This is suggestive, because the liver is the seat of marked disturbances of carbohydrate metabolism in diabetes in which acetone is so greatly increased. The formation of acetone was more abundant the more nearly the conditions of the experiment approached the normal, namely, as to pressure, rapidity of the flow and arterialization of the perfused blood. The quantities of acetone reached 27 mgm. per liter ox blood circulating for seventy-five minutes through the dog's liver.

Another series of experiments was undertaken by Embden, Salomon and Schmidt[28] to determine from what substances the artificially perfused liver formed acetone. Various substances were mixed with the blood used in these experiments, whose intermediary appearance in the metabolism suggested a relation to the formation of acetone. The addition of amino-acids like glycocol, alanin, glutamic acid and asparagin produced no increase of acetone, but the acetone reached 93 mgm. per liter when pure active leucin was employed. From the fact that the increased formation of acetone failed when alpha amino-normalcaproic acid, an isomer of leucin, was added to the blood, the conclusion was reached that the special molecular configuration of leucin, and especially the presence of its isopropyl group, must be the cause of the increased acetone. The next lower homologue of leucin, alpha amino-isovalerianic acid, which is widespread in the albumins, formed, on the other hand, no acetone. It is, therefore, possible that a primary breaking up of the leucin molecule between the beta and gamma carbon atoms is necessary for the formation of acetone. The fatty acids corresponding to leucin and amino-isovalerianic acid on the other hand behaved peculiarly quite the reverse, in that the isobutyl acetic acid, which corresponds with leucin, forms no acetone, while isovalerianic acid, corresponding to aminovalerianic acid, does, and, therefore, the division leading to the formation of acetone must be brought about in a quite other position of the carbon chain than with leucin, namely, between the alpha and beta carbon atoms. From this the other possibility arises that leucin, after a splitting off of its carboxyl group, is changed over into substances with one less carbon atom, and thus follows the law of decomposition of the fatty acids, which are broken down with oxidation of the beta carbon atom. From the purely chemical standpoint, the change from amino-acids into nitrogenous free substances with a carbon atom less, possibly, "*über die Fettsäure stufe*," appears to be a widespread occurrence in intermediary metabolism. Now if the relation of amino fatty acids and fatty acids in the intermediary metabolism is really so close, then this constitutes a highly important positive foundation for a close intermediary relation of the abulminous bodies (the mother substances of the amino-acids) to the fats and carbohydrates, relations which are yet fiercely attacked by noted scientists.

B-oxybutyric acid increased greatly the formation of acetone. The addition of 3.5 gms. B-oxybutyric acid to the blood which was perfused through the liver raised the excretion of acetone to 269 mgm. per liter. Butyric acid also produced the same effect through the intermediary appearance of beta oxybutyric acid. The writers further found that those aromatic amino-acids, which possess an aromatic nucleus combustible in the body — tyrosin, phenyl-alanin, likewise its deamidized derivative, phenyl alpha lactic acid, — and also homogentisic acid, produce acetone, which undoubtedly has its origin in the aromatic nucleus of these substances. On the other hand, various substances containing the aromatic nucleus, but not oxidizable in the body, failed to form acetone. By these experiments one learns for the first time something regarding the intermediary metabolism of the benzol ring during its breaking up in the body. It is of importance to the question to determine whether the homogentisic acid arising out of the aromatic acids represents a normal intermediary product of metabolism or not.

"This uncommonly interesting, cleverly combined and purposefully carried out series of experiments shows the existence of a diatomic carbon chain, important for the sugar synthesis from the building stones (aus Bausteine) of the intermediary albuminous and fatty metabolism in the organism. It forms further quite apart from its biological importance, as well as from its importance for the conception of the acetone formation, an explanation of a fundamental question which has agitated clinical medicine a long while, namely, the origin of the so-called albumin sugar in severe diabetes."

Substances with a diatomic carbon chain are formed in the decomposition of fat, as well as in the decomposition of albumin, in which case amino-acids are liberated, and also in that of carbohydrates where lactic acid is produced. An important rôle must be attributed to these products in various anabolic processes, and especially in the syntheses of grape sugar.

PREVENTION OF FORMATION OF ACETONE BY VARIOUS CARBOHYDRATES.

Satta [29] calls attention to the fact that starch in bread and potatoes, cane sugar, grape sugar, milk sugar and manite diminishes or prevents the formation of acetone. To this list he adds by his own experiments galactose and levulose, and refers to the work of Mohr and Loeb, who were able to produce the same result with pentose (xylose). It has been suggested that since these carbohydrates work differently one may be more powerful than another, but as yet this has not been proven. It is certain that the absorption of the carbohydrates varies, and further that even the same carbohydrate acts differently at one time than another, *i.e.*, the action is apparently not so much due to variation in the carbohydrate as to the individual condition of the patient. Similarly to the above substances, glycerin, tartaric acid, lactic acid and citric acid reduce acetonuria. Satta refers to the fact that all these antiketogenous substances are alcohols or oxyacids, and, therefore, refers their action to the presence of one or more alcohol hydroxyl groups. This apparently is supported by the fact that malonic acid does not produce the same result.

DISCUSSION OF KETOPLASTIC AND ANTIKETOPLASTIC BODIES.

Borchardt [30] discusses the origin of the acetone bodies. He explains that the term ketoplastic and antiketoplastic refers to the power of a substance to cause the excretion but not the formation of acetone bodies. Schmid [31] found that after the administration of fatty acids glycerin was withdrawn from the body for fat synthesis. As glycerin increases the production of sugar, its utilization for the fat synthesis lessens the excretion of sugar in the urine. Mohr [32] was less successful in his experiments in feeding depancreatized dogs with fatty acids, and only in a few cases observed the diminution of the sugar excretion. Borchardt also calls attention to a diabetic patient of Leube, who coincidently with the feeding of butyric acid showed, besides the expected increase of acetone, a clearly diminished excretion of sugar. He also refers to one of Gellmuyden's experiments, in which apparently the same result took place in a case of phloridzin poisoning. These experiments would lead to the belief that the ketoplastic action of fatty acids was exerted not in increasing the formation of acetone, but by the withdrawal of an antiketoplastic substance, namely, glycerin. Gel'muyden [33] [34] found that butyric acid introduced into the stomach in doses of 2 gm. increased acetonuria, but when injected under the skin either did not cause it, or only to a slight extent. Waldvogel's and Hagenburg's experiments are in line with the above. The reason evidently is that the fatty acids administered through the mouth withdraw glycerin from the body, and so diminish carbohydrate metabolism, while administered under the skin, fat synthesis fails, no glycerin is withdrawn and carbohydrate metabolism not lowered. The action of various mono-amino acids in increasing acetonuria may be explained in this way; in their decomposition fatty acids are produced.

Pflüger has shown that the body contains a large quantity of glycogen, varying between 10% and 40% of the total weight of the body organs. According to this the liver would possess about 300 gm. glycogen. Now it is known that 80 gm. of carbohydrates will prevent acetonuria, and the question arises, How can the presence of acetonuria during the first four days of starvation be explained when so much carbohydrate (glycogen) exists in the body? The most probable explanation is that the reserve glycogen is used only for definite purposes. Indeed, we only know two conditions in which glycogen diminishes quickly from the organs, strychnine poisoning and muscular overexertion. In inanition, even after forty days, glycogen is shown to be present in the organs. The locality in the body in which acetone is formed still remains unknown. Satta does not think it is connected with the gastro-intestinal tract, but probably in those organs in which fat is catabolized, since B-oxybutyric acid and its derivatives apparently are connected with fat metabolism.

ACETONURIA AFTER NARCOSIS.

The appearance of acetone and di-acetic acid in the urine after narcosis with chloroform and ether has awakened much interest. Most of the work done has been fragmentary, and only rarely has an attempt been made to estimate quantitatively the amount of these products. Account has not been taken of the acetone excreted by the breath, though it is a well-known fact that this may reach 50%, and the sum of the total acetone, di-acetic acid and B-oxybutyric acid has been seldom, if ever, determined. Another element in the study which has been neglected is the character of the food preceding the narcosis. How important this is, is evident from Seelig's [35] work on ether glycosuria, though performed without reference to acetonuria following narcosis. He found that dogs fed for a sufficiently long time with carbohydrates excrete no sugar in case starved twenty-two to twenty-four hours before the narcosis, but did excrete sugar if fed with carbohydrates eight to ten hours before narcosis, and thus behaved similarly to meat-fed dogs. The amount of glycogen in the liver of the dogs starved for the longer period is about the same as that in a meat-fed dog, although the former excretes no sugar and the latter does. The amount of glycogen in the liver of the dog fed with carbohydrates eight to ten hours before narcosis is two to three times greater than in the dog fed with carbohydrates twenty-two hours before. From these experiments it is evident that the quality of the food and the duration of starvation have a distinct effect on carbohydrate metabolism during narcosis. This is important not alone for the question of ether glycosuria, but for that of ether acetonuria, because the formation of acetone and related bodies in the organism is controlled to a greater or less degree by the extent of the coincident carbohydrate metabolism. But even if the acidosis as shown by the breath and the urine is determined, and careful control of the diet maintained, there is another factor which Langstein [36] has shown of great importance, namely, that the amount of acetone in the urine of children, while absolutely not as great as in adults, is relatively more, and appears more quickly. He further found that the per cent of acetone in the breath of children was far in excess of that excreted in the breath of adults. Thus the amount of acetone excreted by six-year-old children on a diet free from carbohydrates was between nineteen and sixty times greater than on a mixed diet, while in adults it was only three times as great. Young children on a carbohydrate free diet excrete a total amount of acetone greater than older children or adults, and di-acetic acid is always demonstrable in six-year-old children on even the second day of a carbohydrate free diet. Langstein also mentions that children on a carbohydrate free diet are weak, tired and unhappy, but concludes this due not alone to the acidosis but to the one-sided diet. On account of this tendency of young children to acidosis, he concludes that the slightest disturbance of carbohydrate metabolism in connection with a diet rich in fats can lead to harmful results. Hubbard [37] also found acetonuria following narcosis more frequent the younger the patient, but that its presence without symptoms had no relation to operative treatment or prognosis. Baldwin [38] sums up the previous literature and concludes that acetonuria is as likely to follow ether as chloroform anesthesia, but does not bear any relation to the amount of anesthetic used, but Beesley [39] considers it greater after ether than chloroform. According to him postanesthetic acetonuria is the result of constant absorption of toxins. The subject is also discussed by Guthrie [40] who, like Hart,[41] emphasizes the connection between the disintegration of fat in the body and acetonuria, and gives suggestions for the treatment of the symptoms of acidosis. It is evident that no conclusions concerning acetonuria following narcosis can be of much value until the different factors — total acidosis as determined quantitatively in the breath and urine, age of the patient, duration of starvation and character of food — have been considered. And even then one must remember that Baer [42] has shown that there are great individual differences among people in the way they develop acidosis and become accustomed to it.

It is remarkable how constant among the sucking animals is the tendency to produce ammonia for the neutralization of an artificial acidosis, the rabbit being the only known exception. All animals studied showed acidosis on withdrawal of carbohydrates except that in the pig this must be accompanied by starvation and in case of some other animals there must be a coincident nitrogen deficit.

Meyer [43] finds the laws governing acetonuria in the infectious diseases of children in complete agreement with the general doctrine regarding acetone excretion. The acetone diminishes quickly after the ingestion of large amounts of carbohydrates.

(*To be continued.*)

Reports of Societies.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Twentieth Annual Meeting, Held in New York City June 1 and 2, 1906,

(Concluded from No. 23, p. 687.)

CONSERVATIVE PROSTATECTOMY WITH MINIMUM HAZARD.

Dr. Charles H. Chetwood, of New York, said that in presenting this subject he had no new operative technique or original method to set forth, but only observations on his personal work performed during the past year on a class of patients which might be described as "bad risks," or those which went to make the mortality rate higher. The reports of members of the society showed that prostatectomy during the last decade was giving a mortality that was steadily decreasing at the rate of about one per cent per annum. In some cases it made little difference how skillful the operator was or how brilliant his technique; certain physical conditions existed which could not be contended against. Among these were the age and vitality of the patient. It stood to reason that patients of from seventy to eighty years of age should show a higher mortality than those younger. Again, the kidneys bore so important a relation to the immediate condition and the future outlook, and the greater the damage already done to those organs the less could they be expected to stand additional strain in connection with operation. The man who consumed a great deal of food without exercise and who was soft and flabby had less resistive power on account of the resistance required against urinary absorption. Again, a man of advanced years might have his resistive power reduced by great shock or business care of magnitude by the trauma to his nervous system and hence was a poor surgical risk. No one would by choice operate in an emergency, but it had been in connection with the emergency cases of prostatic surgery that he had had to operate within the past five years. This class of cases had impressed him with the advantage of operating in two stages. He had had about eight such cases within the past twelve months, so severe in type and so threatening in character, that in drawing statistics they should be classed by themselves. His results, however, had been so satisfactory that he had decided to submit the cases in evidence of the value of that particular kind of conservatism in the class of cases they represented. Some of these cases might have survived a radical operation in the hands of a rapid and efficient operator, yet he was convinced that had a different course been pursued most, if not all of them, would have succumbed. Even if a few of them had not done so the risk of a radical primary operation would certainly have been greatly increased.

A summary of these cases, which was reported in full, was as follows: Their ages were eighty, fifty-three, seventy-nine, sixty-seven, sixty-nine, sixty-five, seventy, the average being three score and ten. The two in the neighborhood of eighty were exceedingly feeble and considered questionable risks. One gave evidence of advanced renal implication. Three others were emergencies in that they had suffered from acute retention relieved by aspiration. One of them had infiltration of urine in the prevesical region. Two of them had intravescial hemorrhage. Three other patients were soft, flabby, neurotic and would also be classified as poor surgical risks. All of them were submitted to complete radical removal of the prostate, after preliminary drainage, excepting one. In this instance the galvano-cautery was used on account of serious kidney complications. All of them had done remarkably well. The last reports dated from several weeks to twelve months after operation. He laid great stress upon the value of formaldehyde gelatin as a hemostat. It was his custom to employ it after all perineal operations, and since using it he had never had serious hemorrhage and consequently post-operative conditions were better. The drainage by tube had been more continuous and unobstructed, and, generally speaking, there was greater freedom from straining, which was an aggravating and disturbing feature. Further observation upon the secondary operation was the incontestable fact that the parts, owing to circulatory decongestion and granulation, were much more accessible and the line of cleavage between the prostatic tissue and the capsular surrounding more easily separated; hemorrhage was unimportant; shock was trifling; the operating period was minimized to a few minutes, and the after condition of post-operative toxemia was almost entirely eliminated, as the patient during the preliminary period of drainage had become inured to his own secretions and his normal resistance fortified by the hand of nature in advance and in preparation for the concluding operative measure.

A CASE OF STONE IN THE URETER, WITH REMARKS ON THE METHODS OF OPERATING IN SUCH CASES.

Dr. Paul Thorndike, of Boston, reported the case of a man who had had several mild attacks of renal colic within a period of two years. The pain on the right side extended from the kidney region down to the penis and on two occasions there was a macroscopical blood in the urine. The physical examination revealed absolutely nothing. When in the hospital the urine was found to contain oxalate of lime concretions, and red blood cells were found under the microscope. There were no renal elements. Nothing was found macroscopically. The cystoscope showed nothing. So far as the observer could judge there was a stream from each ureteral orifice. There was nothing in the bladder to suggest any trouble in the neighborhood. The x-ray taken of the right kidney showed nothing. An x-ray of the bladder revealed a stone which the house surgeon suggested was in the bladder but which could not be felt with the searcher. An operation was performed through a suprapubic incision; when the bladder was opened nothing was found. Both ureteral orifices seemed to be normal. But it was easy to slip a long probe in the ureteral orifice of the right ureter and a contact with a stone was made about from one to one and a half inches from the mouth. With the finger in the bladder it was easily dislodged by the aid of a pair of forceps made especially for the purpose of extracting foreign bodies from the trachea or esophagus. The patient made an uneventful recovery.

This history was related because it was seldom that a stone was found in the lower end of the ureter without manifesting its presence in some way in the bladder. At the time of operation there were no indications for operation or treatment of any kind. Mild attacks of the kind this patient had should always be investigated carefully.

Dr. Thorndike then spoke of the methods employed in taking x-ray pictures at the Boston Hospital.

Dr. Arthur T. Cabot, of Boston, regarded the perineal route in performing prostatectomy as the safer and the surer, and better results so far as urination was concerned were obtained. The death-rate after perineal prostatectomy was about 4% or 5% at the outside, whereas the death-rate for the suprapubic operation was about 10%. One of our greatest triumphs he believed to be the relief of the small prostates by the perineal route; the prostates would not be enucleated or pealed out by the suprapubic route. In cases of prostatism when stones were present, or even crystals of uric acid in quantities to be irritating, he first did a preliminary litholapaxy and sometimes this would cure the prostatism.

Dr. Edward Martin, of Philadelphia, in dealing with cases of small prostate with a contracted ring about the vesical neck, had met with success in using the dilators, obtaining in some instances complete relief by dilating up to 90.

Dr. George K. Swinburne, of New York, said that it should be borne in mind that there were a large number of cases which ought not to be operated upon, and some even on which you could not operate, and he reported in detail a case to show this.

Dr. Bransford Lewis, of St. Louis, thought that the keynote of Pedersen's and Chetwood's papers was conservatism, and both papers were to be highly commended largely on that account.

Dr. L. Bolton Bangs, of New York, said that one preferred the perineal route, yet there were cases in which one was compelled to use the other. The choice of routes was not so important to him as to decide whether to operate or not. He had found a great many people had been saved from operation, and it certainly seemed to him that, in his neighborhood, there was not the same desire on the part of the laity to be operated upon as there was two years ago.

DOES SYPHILIS IN SOME CASES SPONTANEOUSLY ABORT IN THE PRIMARY STAGE?

Dr. R. W. Taylor, of New York, discussed this question. He said that one of the canons of medical belief was that general syphilis always followed a chancre and this belief was well founded. In 826 patients with general syphilis who were treated at the hospital du Midi the previous existence of a chancre in 815 was established beyond doubt, in 9 there was cogent reason to suspect it and in the remaining 2 the disease was of hereditary origin. Of 267 cases of secondary syphilis observed by Fournier the same fact obtained in 265. A review of further statistics showed that in a total of 1,291 cases, general syphilis was undoubtedly preceded by a chancre in all except 22. In spite of this Burnett said that there were sores exhibiting every characteristic of the most typical Hunterian chancre which were not followed by manifestations of constitutional syphilis. This fact had not been sufficiently emphasized by those whose duty it was to teach the general profession. After many years of observation he was thoroughly convinced that the spontaneous abortion of syphilis in the primary state sometimes did occur. As the subject was so little understood he cited four cases.

Case I. A Jewish girl, fourteen years of age, was seen on Oct. 10, 1905. He had found a typical nodule, with characteristic induration and a chancrously eroded surface, associated with a hard walnut-sized tumor of the sublingual gland. Several slides moistened with the very slight viscid secretion showed the spirocheta pallida in typical form and in considerable abundance. Mercurial plaster was applied. No constitutional treatment was resorted to awaiting development of systemic manifestations. The chancre gradually subsided in about a month, at the end of which time the glandular swelling also underwent involution. There had never been any eruption, sore throat, or any symptom whatever except an occasional slight and very ephemeral muscular pain in the forearms. In March he incised the seat of the healed chancre, made smears of blood which, after most thorough microscopic examination, showed no spirocheta pallida. Later examination gave the same results, and up to May 27, there had been no evidence of specific sequelæ, and since there had been an interim of eight months it was safe to say that there would be none.

Case II. In May, 1889, a lady of good family was seen with an encrusted chancre of the inner aspect of the right labium minus which had existed two weeks. She had had coitus with but one man, whom he had treated for an excoriated and weeping indurated nodule of the left coronal sulcus. He also had marked inguinal adenopathies. The man's syphilis developed in classical form. In the woman's case the typical induration of the parts and the pronounced adenopathies clearly showed that she had received active syphilitic infection. The chancre was treated on general antiseptic lines and the course of the genital lesion was uneventful; the adenopathies subsided. The woman was highly intelligent and hoped within two years to marry a lucrative husband, and consequently was docile and observant. To the surprise of Dr. Taylor every thing cleared off in the course of three months and no deviation in the patient's health could be found. The woman's body was examined thoroughly every week for six months, but there was no data that would warrant the institution of anti-syphilitic treatment. A close watch was kept for eighteen months and she never developed the faintest sign of syphilis. She married and had two healthy children, and was to-day in vigorous health.

Case III. Sept. 20, 1888, a man, aged thirty-five, presented himself with a small chancrous erosion behind the sulcus and near the frenum. The lesion was slight though so typical that the patient was informed that it was suspicious. Absolute cleanliness was enforced and black wash applied. In three weeks the lesion developed characteristically. It presented marked induration which was annular in character, and within the ring was the tell-tale membrane of cream and greenish color. The enlargement of the efferent lymphatics was well marked and the ganglia formed a pleiad thoroughly significant of syphilis. The patient consented to await developments before anti-syphilitic measures were adopted. The chancre retrograded and the ganglia underwent involution. By January, 1889, the only visible sign of the former lesion was a slight redness and scaliness of its site. The man was watched every five days for evidence of general syphilitic infection, but such never appeared. No syphilis hereditary or acquired was present in this case.

Case IV. A man, twenty-eight years old, had a single coitus with a woman who was found to have condylomata of the vulva. About three weeks later he presented himself with an erosion and hardening of both lips of the meatus. In January he had a typical induration of the meatus which extended fully half an inch backward, with chancrous erosions and classical cream-green membrane in the cleft of the parts. The inguinal ganglia were enlarged, hard and painless. There was no doubt but that the man had true sclerosis of the glans penis. Anti-syphilitic measures were adopted. Some time after he had predicted that the general manifestations would appear, the induration showed only a slight excoriation. He had done nothing but keep it clean. The sore was about the size of a half buckshot and there was a slight non-purulent discharge. Ten days later it presented the typical characteristic of a Hunterian chancre. The only treatment was local. In three weeks the sore had healed, induration gradually disappeared and the swelling in the groin subsided. No signs of general syphilis appeared up to sixteen months after the time of infection. A case of Dr. Byson's and also one of Kaposi's were reported. Several others were also referred to making in all ten cases reported by seven observers. Burnett saw nothing irrational in the premise that these sores were typical chancres, and through some influence modifying the virus, the disease was checked in the primary stage. Barthelemy thought that the disease aborted owing to influences which we did not understand, due to conditions of the organism or to a modification of the virus itself. Besnier's theory was that there was something in the physical condition of some individuals which was antagonistic to the germination of the syphilitic virus. Some of the reported cases of successful excision of chancre were really instances in which syphilis aborted in the first stage. In the study of a cognate case we should acquaint ourselves, as far as possible, with the patient's history and with that of his immediate progenitors. An antecedent acquired syphilis might be followed by chancriform relapsing lesions which might mislead the observer. Though hereditary syphilis usually conferred on its bearer an immunity against the acquired affection, in some cases the hereditary disease waned, and immunity was lost, and acquired infection might occur. It was most important in the study of all cases of chancre to determine, if possible, whether the patient had previously acquired infection or whether the disease had begun in a subject who in early life had the hereditary diathesis. In his opinion there were some cases that spontaneously aborted in the primary stage.

Dr. E. Wood Ruggles, of Rochester, N. Y.; Dr. Edwin C. Burnett, of St. Louis; Dr. N. B. Carson, of St. Louis; Dr. George K. Swinburne, of New York; Dr. James Pedersen, of New York, and Dr. A. C. Wood, of Philadelphia, discussed the paper.

REPORT OF AN INTERESTING CASE.

Dr. R. W. Taylor reported this case. A young man, thirty years of age, presented himself with a small parchment-like chancrous erosion on the inner lamella of the prepuce, roseolous, syphilide and mild inguinal adenopathies, nocturnal neuralgic pains in the occiput. When told that he had syphilis he said that undoubtedly his wife also was affected, since she had a sore on the vulva and a generalized rash. She was in the eighth month of her first pregnancy. He had had a suspicious coitus when his wife was about four and one-half months pregnant and she was probably infected at about the fifth and a half month of pregnancy. As these people were in the power of an irregular practitioner who was antimercurialist, neither of the parties took any true anti-syphilitic medication. The woman went to term and gave birth to a seemingly healthy boy. The baby was scrupulously watched for months, but nothing abnormal was found. It had little anti-syphilitic treatment. The child grew as most children did. When the second teeth appeared they were ill-formed and of the Hutchinson type. When four years old the child suffered severely at times with pain, and periostitis of the right humerus and synovitis of the right knee developed. At this time the nutrition of the child waned, but under small doses of mixed treatment and the local use of mercurial ointment the pains ceased, the osseous and articular lesions subsided, and the child entered into very satisfactory health. While this case was remarkable it was thoroughly explicable. In the light of extended study it was now conceded that there was a virulent form of hereditary syphilis in which the old time classical symptoms were marked features, and there was a dystrophic form in which there was more or less ill-health, at times hardly, if at all, appreciable, but in which dystrophic changes in the bones, teeth, ears, eyes, brain, etc., might occur.

A NOTE ON CYST OF THE PROSTATE.

Dr. Arthur Tracy Cabot, of Boston, presented this paper. He said that cysts of the prostate large enough to make their presence known were exceedingly rare, and might be classified as follows: (1) Echinococcus cysts. Belfield found but three authentic instances of this kind of cyst originating in the prostate. Thompson, in 1883, could find but one reported case and that was doubtful as to its prostatic origin. (2) Retention cysts due to the distention of occluded prostatic glands. (3) Cystic dilatation of the utricle This was occasionally found in children, and Engliach was reported to have found this condition five times in seventy autopsies of the new born. (4) Cysts or cystic cavities might form in connection with cancer of the prostate. He reported two cases belonging to Classes (2) and (4).

Case I. E. P., eighty-seven years of age, having for a number of years had complete prostatic obstruction and latterly had suffered considerable pain, during emptying the bladder and withdrawing the catheter. He developed a prostatic swelling simulating an abscess, which was opened through the rectum. The trocar entered a cavity containing about two ounces of glairy fluid which seemed to occupy the greater part of the prostatic gland. The cavity was opened and drained. The patient succumbed to a pyelonephritis seventeen days later. Autopsy revealed a cancer of the prostate in rather an early stage. There was also a smaller pocket which itself was pouched as though made up of several still smaller cavities which had coalesced. This was filled with thick opaque yellowish fluid which contained epithelial cells, leucocytes and débris, but no bacteria. The pathological examination showed a general carcinomatous change in the prostate. Near the edge of the section of the cavity entered by operation there was considerable lymphatic interstitial infiltration with epithelial cells. The edge corresponding to the wall of the cavity was made up of a weak granulation tissue containing but a few blood vessels and made up for the most part of a thin layer of young connective tissue cells interspersed between which were a few leucocytes.

The second case was probably a retention cyst, though as the patient recovered there was no opportunity for the study of its pathology.

Case II. E. T. W., whom he had treated in 1899 for a chronic urethritis following gonorrhea. When nearly well he had suffered a relapse after exposure, but finally recovered to the extent that the gleet wholly disappeared. In 1906, at the age of forty-six, he again consulted Dr. Cabot, complaining of frequent urination with a feeling of pressure in the bladder afterwards. He had an annoying desire to urinate, the urine was slightly cloudy with shreds in the first part. The prostate felt like a normal gland and massage brought but a drop or two of cloudy fluid. The symptoms continuing for a month, he tested the residual urine and found ten ounces. A cystoscopic examination made a short time after showed projections from the prostate to the left and behind the urethral orifice. At this time he had but three ounces of residuum. The patient refused operation. He continued reasonably comfortable for some time longer, but finally the use of the catheter became necessary as he was able to pass but little urine otherwise. The use of the instrument was difficult on account of a spasmodic condition of the deep urethra. The cystoscope showed a projecting tumor on the left of the internal meatus. It had a translucent look with few distinct vessels on its surface. He thought it looked like a cyst though he had never heard of one in that locality. On opening the bladder the tumor was found to be about the size of a cherry projecting well into the bladder and also against the urethra which it tightly closed. On seizing it with the forceps it ruptured and collapsed. The character of the fluid could not be made out. The wall of the cyst was cut away and the interior seared with the Paquelin cautery. The power of urination was fully restored and the patient remained quite well after the lapse of seven months. Should such a case present itself again he felt that it could be dealt with through the urethra with a Bottini cautery. Belfield had reported the only case of such a cyst which he had found in a hasty search of literature, though cystic dilatations of these glands of insignificant size were of common occurrence in old prostates.

Dr. Robert H. Greene, of New York, discussed this paper.

SOME REMARKS ON LITHOLAPAXY.

Dr. W. K. Otis, of New York, made this contribution.

A CASE OF LITHOLAPAXY: 158 STONES AT ONE WASH.

Dr. Edward L. Keyes, Jr., reported this case. Mr. S. R. B. presented himself in August, 1881. He was forty-five years of age, gave a history of hard chancre, twenty years before treated for six months. He complained of slowness and difficulty in urination increasing during the past year, and interrupted by one attack of acute retention. He was constipated. He had the sensation of a cord about the waist with occasional sharp pains and uneasy sensations in the hypogastrium. Dr. Van Buren had made the diagnosis of locomotor ataxia and had ordered catheterism once a day. The diagnosis was considered by Dr. E. L.

Keyes, Sr., to be correct. Mixed treatment was pushed for some time. In February, 1883, the patient's condition remained unchanged, and he had had one attack of acute retention. He used the catheter about once a week, but did not irrigate or inject anything into the bladder. He occasionally passed wind through the urethra. The urine was not ammoniacal and there was no evidence of neoplasm. The urine was acid, purulent, brothy and had a specific gravity of 1,022. The pneumaturia soon ceased and he noticed the passage of a little grit from the urethra. He began to have pain in the region of the left kidney, and in 1889 the urine was ammoniacal and the left kidney constantly painful, in spite of salol and bladder wash. In 1895, be had a mixed cell sarcoma removed from the left parotid and a year later a small gland from the neck. By this time he had reached complete retention. In 1895, litholapaxy was performed and a uric acid stone, with a phosphatic envelope, about the size of a pigeon egg was removed. Six months later more phosphates were crushed. In October, 1897, eight phosphatic stones were crushed and washed out. On November, 1898, six more. In May, 1900, hemorrhoids were removed and one and one-half drachms urate stone was washed away. In the meantime he had begun to have neuralgia in the loin. In 1904, an x-ray showed no stone, but tuberculosis of the body of the last dorsal vertebra. This was the cause of the so-called ataxia. In October, 1905, he passed a small stone through catheter. In March, 1906, the one hundred and fifty-eight stones which Dr. Keyes showed were washed away in twenty minutes without crushing. Their total weight was two drachms. The patient was as well as ever twenty-four hours after operation. The patient kept himself very clean by using the catheter four times daily and irrigating with boric acid each time. He had taken a daily enema for twenty-five years. This was the third time he had known a competent man to overlook stones in the bladder in making an x-ray diagnosis.

Dr. Arthur T. Cabot, of Boston, and Dr. F. Tilden Brown, of New York, discussed this paper.

SOME CASES OF KIDNEY AND URETERAL STONE.

Dr. George K. Swinburne, of New York, reported these cases.

Case I. Oxylate of limestone in the kidney. W. B., a tailor, aged thirty-three years, who came to him in 1901. He had suffered for two years with pain in the right side and back and had lost strength. Urine was cloudy and urination frequent. He had had gonorrhea ten years previously. Examination showed chronic prostatitis with considerable enlargement. He was treated by massage of the prostate, bladder irrigation and the internal administration of urinary antiseptics. No bacilli were found in the urine. His digestion was not good and he suffered from constipation. He continued under treatment for two years. Several cystoscopic examinations were made, but nothing unusual found. Stone in the right kidney was suspected. A fresh attack of gonorrhea set up a posterior urethritis, and he was sent to the hospital, where the x-ray was used but revealed nothing. Nevertheless, he was operated upon, and after considerable search a small irregular calculus of oxylate of lime was found in the extreme upper pole of the kidney and removed. After recovery the urine cleared up and the patient's strength returned, but he came back several times with attacks of oxaluria, during which the urine showed immense numbers of oxylate of lime crystals. A calomel purge followed by dilute nitro-hydrochloric acid always cleared up the attacks.

Case II. Stone in the lower part of the right ureter. H. S., thirty-five years of age, a barber, brought to him four years ago for a cystoscopic examination, having suffered for eighteen years from neuralgia of the testicle and infrequent attacks of what seemed to be renal colic. Examination showed a perfectly normal bladder, the mouths of both ureters were located and were perfectly normal in appearance. The posterior urethra was somewhat congested and there was a slight nodule in the epididymis on the right side. His urine was at first clear, but three months later, after having been treated elsewhere, it became cloudy; there was frequency of urination and his condition was much worse than before. About a year later he was operated upon for stone in the kidney at the hospital. Some time later he returned to Dr. Swinburne with a distinct attack of renal colic. A cystoscopic examination showed involvement of the mouth of the right ureter. The calculus was removed extraperitoneally. It was a large oxylate of limestone. He thought that after the bladder had been affected by the injudicious passage of sounds there was an ascending infection in the right ureter, and the portion below the stone had borne the brunt of the infection, making a different cystoscopic picture from that at the beginning. The patient made a good recovery though he had had several attacks seemingly due to oxaluria.

Case III. Stone in the kidney, shown by x-ray. M. Z., forty-six years old, came to him in 1905, suffering from repeated attacks of renal colic and from pain in the left side. Cystoscopic examination showed the bladder normal, the urine of low specific gravity, but clear. An x-ray picture showed a clearly outlined shadow. At the suggestion of an operation the patient disappeared.

Case IV. Renal calculus as shown by x-ray. W., twenty-three years of age, showed a beautiful calculus in the x-ray print. The patient after recovery from a gonorrhea had a cloudy urine, pain in the back and right side low down. The prostate and deep urethra needed treatment and it was thought that when they were cleared up the pain would go. An x-ray taken under Dr. Keyes' direction, while Dr. Swinburne was absent, showed that the patient had a stone in the kidney. Operation was refused.

Case V. W. P., a lawyer, thirty years old, came to him in August, 1902, suffering from great frequency of urination both day and night. He had been getting up as often as twenty-two times, had lost weight and had some pain on urination. There was some pain in the right side and down the back of the thigh. The urine was cloudy and contained some blood. He had several attacks resembling renal colic. His pain had been worse during the five months previous to his coming to Dr. Swinburne. The prostate was enlarged and apparently nodular and both epididymes were thickened. After a few treatments with bladder washings with a solution of argyrol, and argyrol left in the bladder, the frequency of urination diminished markedly. The urine continued cloudy and there was some blood present. There was a family history of tuberculosis, but repeated examinations failed to reveal bacilli. Several x-ray plates were negative. Under treatment the patient steadily gained and the bladder capacity increased from 2 oz. to 4 or $4\frac{1}{2}$ oz. and about a year later reached 6 oz. The bleeding ceased and the urine became less cloudy. The prostate gradually approached normal. Cystoscopy was negative and unsatisfactory. In April, 1905, he had an attack of pain in the right side running down the course of the ureters into the testicle. The pain lasted several hours and the following day he was as well as ever. In February, 1906, a cystoscopic examination was made under ether anesthesia. The bladder under ether held two ounces. The bladder mucous membrane was normal. The right ureteral orifice was contracted on the face of a projecting as if it were pushed forward, there being a sort of pocket to the inner and lower side formed by the projecting bladder wall with the intramural portion of the ureter. The appearance could only be explained by a ureteral stone lodged in the lower end of the ureter and this was thought to be the true explanation. Several x-ray photographs showed no distinct shadow, but three small shadows were found in the region of the left ureter. An exploratory supra-pubic cystotomy was performed in April. The operation was unusually difficult. There was considerable abdominal fat and the bladder was contracted and the walls very thick. The conditions were found exactly as in the cystoscopic examination, but no calculus could be found. The ureteral mouth was so contracted that nothing could be made to enter. As soon as a fine probe was made to impinge at the orifice the bladder wall would yield and the urine could be seen welling up from the orifice. The pouch to the inner side of the ureteral orifice was fully an inch deep running under the ureter as it passed through the wall, but instead of following the ureter a thick cicatricial band could be felt curving upwards and inwards due to the inflammatory infiltration or to continued muscular spasm. As it seemed impossible to accomplish anything the wound was closed, leaving a suprapubic tube in place for drainage. The wound had completely closed and he hoped for a recovery to the point where the patient was before operation.

THE DIAGNOSIS OF RENAL COLIC.

DR. EDWARD L. KEYES, of New York, read this paper. He said it was not his purpose to discuss the familiar phenomena known as renal colic, but to show that though renal colic was the cardinal symptom of renal stone, severe and typical colic might occur from causes other than stone, and might usually be distinguished by methods of examination which had long been familiar and which, excepting the x-ray, were practically always at hand. Renal colic due to stone by its location usually pointed to the locality of the stone. He had never known renal colic to occur on the side opposite the affected kidney, yet he had known of the absence of renal colic and the presence for many years of frequent and painful urination as the only symptom of renal stone. In this case the stone was in the pelvis of the kidney and there was no stone at the end of the ureter. The removal of the stone from the kidney was followed by complete, though spasmodic retention for several days after which frequency of urination did not return. During the past few years he had come upon a series of conditions, genital, urinary, intestinal, all of which produced symptoms suggestive of kidney stone, and chief among those renal colic.

CASE I. A large, full-blooded man, fifty-eight years of age, who had had attacks of renal colic covering five years. He had never passed blood, had anuria or bladder symptoms, although he had urinated twice at night and about every three hours by day. The patient was in apparently good health. No lumbar tenderness could be evoked nor was it possible to feel either kidney. X-ray photographs were interpreted as showing small sclerotic kidneys, but no shadow suggestive of stone. Analysis of the urine showed uric acid crystals, many casts, hyaline, finely granular, epithelial and pus; many pus cells, but no bacteria. There was a trace of albumin, but no sugar. Specific gravity was from 1,020 to 1,025; urea, 1 to 1½%; total excretion probably not far from normal. He was given an alkaline mixture, advised to drink freely of water and to exercise to the limit of toleration. Thus far he had had no further renal colics. In this instance the renal colic was manifestly due to gouty disposition, but in certain cases it would seem that showers of crystals were caused by digestive crises. The following case illustrated this.

CASE II. An anemic neurotic Hebrew, aged twenty-one, complaining of colic in the right side. He had had this pain since the age of seven years two or three times a year until between two and three years ago, since which time the attacks had grown more frequent. The center of pain had not moved in all these years. He had never passed blood, nor had anuria, but a sense of burning on urination accompanied the attack and it was preceded by a sensation of gas in the bowels. For two months he had constant pain in the region of the right quadratus lumborum down to the right thigh and sufficiently intense to make him limp. The seminal vesicles were distended and he was subjected to constant sexual excitement. The right kidney was palpable, but not tender. Urine contained a trace of albumin, many hyalin casts and an excess of indican. Specific gravity was 1,023, and there were many uric acid and urate crystals and a few leucocytes. Satisfactory x-rays showed no stone. The cause ot the pain was thought to be partly sexual until irrigation of the bowel with hot water, over exercise, undereating and the drinking of large quantities of water and repeated questionings showed that the attacks occurred only when he was constipated, and that high enema usually sufficed to relieve the pain. Betanaphthol, bismuth and salol were administered, and hygienic and dietary measures pushed. His colics ceased though urine remained unchanged; his general health improved and his weight increased. He had no further pain until six months later when after dietary indiscretion he had terrific colic and an excessive shower of crystals with blood. Since that time he has remained well.

To be further distinguished were such cases as showed pseudorenal colic due to digestive derangement without any disorder of the urinary organs.

CASE III. A man, forty-nine years of age, in good general health, presented himself in April, 1903. He had been under treatment for six weeks for chronic urethral discharge of some months' duration, and reported several severe attacks of pain in the left side at intervals of a few hours. Examination revealed nothing but a sensitive testicle and diffused tenderness all over the left lower quadrant of the abdomen. There was no temperature, nothing palpable in the kidney region, nothing abnormal in the urine save the shreds and pus from his ureteral catarrh. The fourth day from the beginning of the attack more severe pain caused vomiting. The pain was always on the left side. Since the bowels had not moved, a saline cathartic and high enemata were ordered which evoked a copious catharsis upon which the pain subsided and never returned.

In the following case the renal colic was due to prostatitis and vesiculitis.

CASE IV. An Armenian, twenty-three years of age, apparently in good health, complaining of attacks of pain in the right side and in the perineum. A year previously he had had an alleged gonorrhea that was associated with some dysuria. After a severe cold he began to have attacks resembling right renal colic. The pain began in the right loin, ran down the course of the urethra, and finally centered in the perineum. These attacks became more frequent and severe. There was no anuria, no blood and no further urethral discharge. The urine contained shreds more numerous after a severe attack than after a mild one. Examination showed nothing in the region of the kidneys or pelvis. The urine was acid, specific gravity 1,010, albumin one-tenth of one per cent by weight, no sugar and no casts seen. Bladder capacity was 5 oz. Urine passed first was hazy with pus, but later practically clear. Prostate was enlarged, boggy and tender. Gentle massage yielded a fair amount of pus. It was inferred that the pus did not come from the kidneys, as after washing the bladder the urine showed no free pus. When the congestion of the prostate was relieved by treatment the perineal pain diminished and at the end of three weeks he passed a large piece of necrotic tissue, which was followed by free bleeding at the end of urination. He had no further pain. He said that he had made no attempt to cover every possible condition that might cause renal colic. He did not think the gall bladder cases confusing and so had omitted to speak of them. He also described a neurotic case which, beginning as a pyelonephritis, wound up in a series of neurotic disturbances. The symptoms in this case were such as led to an operation which revealed large and congested kidney, but no stone and no pus. After operation the kidney was no longer palpable and the soreness shifted to other locations. Later he reported that he had been operated upon for double flat foot and that afterward the pain in the left side disappeared. He had learned little from his failures. His one failure, a case of idiopathic nephralgia, had already been recorded.

Dr. Bransford Lewis, of St. Louis; Dr. Francis R. Hagner, of Washington; Dr. Arthur T. Cabot, of Boston; Dr. George K. Swinburne, of New York; Dr. Robert H. Greene, of New York; Dr. F. Tilden Brown, of New York, discussed these papers.

ELECTION OF OFFICERS.

President, Dr. William K. Otis, of New York; vice-president, Dr. Harvey G. Mudd, of St. Louis; secretary, Dr. John Van der Poel, of New York. Member of Council, Dr. Hugh H. Young, of Baltimore. Next place of meeting, Washington, D. C.

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Book Reviews.

Sex and Character. By Otto Weininger. Authorized translations from the sixth German edition. Pp. xxii, 356. London: William Heinemann. New York: G. P. Putnam's Sons. 1906.

This extraordinary book, which may excite interest through its originality and method, but which must utterly fail to carry conviction, was written by a man under twenty-three. The attempt is made on a logical and philosophical basis to construct a scheme of the relation of the sexes, or a science of "characterology." To accomplish this end the author has drawn liberally from biological and philosophical sources, in which he shows much erudition. In the investigation he believes that he has made a contribution toward the problem of a world-scheme and the meaning of the universe, in addition to an elucidation of the problem of sex-relations. Through a system of reasoning which the limits of this notice do not permit us to detail, Weininger attempts to estimate the fundamental characteristics of woman, as a part of humanity. The genus suffers in the analysis, as the following quotations indicate: "It has been exhaustively proved that the female is soulless and possesses neither ego nor individuality, personality nor freedom, character nor will." (P. 207.) Most women, at least, like to hear discussions on their souls, although they know, as far as they can be said to *know* anything, that the whole thing is a swindle." (P. 211.) "The disposition for and inclination to prostitution is as organic in a woman as is the capacity for motherhood." (P. 217.) And again: "After a long analysis, then, it has been found that there is no exception to the complete absence in woman of any true, inalienable relation to worth." (P. 279.) "Women have no existence and no essence; they are not, they are nothing. Mankind occurs as male or female, as something or nothing." (P. 286.)

Whatever the brilliancy of the author's mind may have been, his conclusions, as fairly exemplified in the foregoing quotations, are so far removed from and opposed to common sense, that they are not worthy the smallest consideration. It is, perhaps, the best commentary on the book that its author shot himself at the age of twenty-three.

Topographical Dermatology. By R. Sabouraud, Director of the City of Paris Dermatological Laboratory. English Translation by C. F. Marshall. New York and London: Rebman Company. 1906.

In this book the somewhat novel attempt is made to describe diseases of the skin according to the region affected. For example, as the preface states, if a student has a disease which he suspects to be scabies and which he sees is especially marked on the hands and wrists, he would consult, in this volume, either the article on the wrist or that on the hands wherein are described the various diseases which affect these parts especially. The value of this form of presentation seems to us questionable, inasmuch as nothing approaching completeness can be attained: only a few of the possible affections that may affect the given part can be mentioned in any article. It does not seem to us that the book in any way takes the place of the ordinary textbook, but might be a useful aid in connection with it. The book is provided with 231 illustrations in the text, many of which are of great excellence.

Atlas of Cutaneous Morbid Histology. Dr. Max Joseph and J. B. Van Deventer. Chicago: W. T. Keener & Co. 1906.

This volume contains 53 colored figures on 24 plates, together with text. The preparations are all taken from Joseph's own collection, and the plates have been prepared by Van Deventer. The reproductions are very well done, and the plates beautifully colored. A large number of ordinary skin affections are here portrayed histologically, as well as many of the less common ones. The book will afford considerable interest to the dermatologist or to any one interested in the pathological histology of the skin.

The Dissociation of a Personality. A Biographical Study in Abnormal Psychology. By Morton Prince, M.D., Professor of Diseases of the Nervous System, Tufts College Medical School; Physician for Diseases of the Nervous System, Boston City Hospital. London and Bombay: Longmans, Green, & Co. 1906.

In the publication of this book Dr. Prince has set himself an extremely difficult task, which he has accomplished in a wholly satisfactory manner. Few subjects in medicine are more subtle, more open to misconstruction, and more difficult to present with clearness to the average reader than the extraordinary phenomena occurring in hysterical persons, known in these modern days as dissociation or disintegration of the personality. On the basis of a case now well-known to psychologists and physicians as the case of Miss Beauchamp, Dr. Prince has analyzed the phenomena underlying and constituting such a disintegration of the personality. In the first place he has traced the development of a series of personalities which originated through the disintegration of the normal self; in the second place shown their psychological relations to one another and to the normal self; and in the third place, by the biographical method, has traced the life history of the various disintegrated personalities. The study before us is part of a more comprehensive work promised later.

Dr. Prince has the happy faculty of combining an entertaining style with a critical acumen which is too often lacking in writing of this sort. Beginning with a patient who manifests certain alterations of personality he develops the various phases into which he finds the patient has disintegrated, in a way which leads the reader to a peculiarly vivid understanding of the problems at issue. In part one, he brings to the surface a personality known as Sally, who plays an important part in the life history of Miss Beauchamp. She is succeeded or accompanied by a personality known as B IV and in fact many others appear later. In the second part, the attempt to discover the real Miss Beauchamp from the complex of personalities developed in the course of the study is undertaken, with ultimate success. The reader follows the history of the different personalities with increasing interest, until finally at the very end, after sundry and profound difficulties and conflicts, they are reunited in the real Miss Beauchamp, and a cure is finally effected.

It is not possible in the space allotted to this notice to describe in detail the history of the various personalities resident in the original Miss Beauchamp. For this we must refer the reader to the book itself. It is, however, a satisfaction to commend the method and spirit in which Dr. Prince has undertaken his task. The patience, perseverance and actual labor involved in the study of a case of this sort cannot be appreciated by those who have not delved to some extent in these problems. What Dr. Prince has aimed to do, and in this we think he has succeeded, is to make clear to the reader the evolution of the extraordinary conditions which underlie peculiarities of temperament and the hysterical state, and also to throw various side lights upon many poorly understood neuroses. He has likewise rendered a distinct service to psychology in drawing attention to the significance of abnormal states in the understanding of so-called normal phenomena of the mental life. In this also he has succeeded.

The book is long, 525 pages, without the appendix, which adds some 30 more. Condensation in some parts would not have detracted from the value of the book as a scientific study, and would have been a relief to the reader. There is also a certain amount of repetition which, although possibly serving to impress a point, might well be curtailed in a future edition. The style is admirable, the reasoning sound, and the spirit of the entire book judicial. This case so adequately and completely discussed will no doubt take its place among the growing number of those which throw a profound light upon many of the subtlest processes of the human mind.

An Introduction to Physiology. By W. T. Porter. 587 pages. Philadelphia and London: J. B. Lippincott & Co. 1906.

In the movement to establish laboratory teaching of physiology Professor Porter's contributions both to the descriptions of instructive experiments and to the production of proper apparatus are widely recognized. In this volume are collected many experiments in various fields of physiology, so described that they may be performed by medical students. Most of these experiments have been performed by classes in the Harvard Medical School; the value of the experiments for purposes of instruction has therefore been tested. The present volume, however, is stated to be "for temporary use," and is to be replaced by a "Laboratory Textbook of Physiology."

The Medical Record Visiting List or Physician's Diary for 1907. New revised edition. New York: William Wood & Co.

Our readers are familiar with the Medical Record Visiting List. The present edition for 1907 has been revised and brought abreast of the year both by adding essentials and omitting unessentials. This revision is, as usual, most marked in the list of remedies. It will be found a very satisfactory and useful publication for the busy practising physician.

Aids to Physiology. By P. T. B. Beale, F.R.C.S. 240 pages. New York: William Wood & Co. 1906.

This small volume belongs to the class *compend.* Like others of its class the pages too often present little more than lists of names. The student is not led to think of the relations of organic functioning or to reason about the effects of organic change, but is encouraged in the baneful process of unintelligent memorizing. The subject matter of the volume is far from being up to date.

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REOPENING OF THE NEW YORK WOMAN'S HOSPITAL.

After more than four years' intermission in its work, owing to removal to a different site, the Woman's Hospital in the state of New York was reopened under the most satisfactory auspices on Dec. 5, in its spacious and attractive building on West 110th Street, facing the grounds of the Cathedral of St. John the Divine. The exercises on this occasion were held in the beautiful chapel of the institution, and addresses were made by John E. Parsons, the president of the board of managers, Dr. D. B. St. John Roosa, Bishop Henry C. Potter and Gen. Horace Porter. Mr. Parsons, in his remarks, gave a sketch of the history of the hospital, which was started in May, 1855, by Dr. J. Marion Sims in a private house on Madison Avenue, and, as a result of the indefatigable labors of Dr. Sims, was enabled some years later to put up the large buildings on Park Avenue on an entire block owned by it, which were occupied until the sale of the property to the New York Central Railroad Company necessitated their abandonment. He stated that, notwithstanding the many generous gifts it had received, the new hospital started with a debt of $200,000, and he expressed the hope that, in view of the great benefit which the institution had proved to the community, the city authorities might be induced to aid its finances.

Dr. Roosa paid an eloquent tribute to the original genius of Marion Sims, stating that his device of the silver wire suture was an achievement which was unquestionably to be classed as an epoch making one. He then referred to the splendid results which were afterwards accomplished by Thomas Addis Emmet, T. Gaillard Thomas and Edmund R. Peaslee; which, with the brilliant successes of Sims, gave the New York Woman's Hospital a unique position and made its work the standard of excellence in gynecological procedures throughout the civilized world. Dr. Roosa also seconded heartily the suggestion of Mr. Parsons in regard to municipal aid, and said that, to his mind, it was clearly the duty of the city and state to contribute to the support of this and similar philanthropic institutions. Bishop Potter said that fifteen years ago, when the site for the cathedral had just been selected, he dreamed that these beautiful and historic heights, rendered sacred by the blood of American patriots shed in the war of Independence, would one day be crowned with religious, philanthropic and educational institutions. To-day, much sooner than he could have thought of anticipating, that dream was realized, and there were now located here the rising cathedral, the National Academy of Design, Columbia University, the Teachers and Barnard colleges, St. Luke's Hospital, St. Luke's Home and, finally the new Woman's Hospital. After the exercises tea was served in the nurses' dining-room, which is a large and attractive apartment fitted out with small tables.

The new building, which is of imposing height and very handsome from an architectural point of view, is constructed of granite and limestone, and so completely fire-proof that it is stated that it would be impossible for the flames of burning material in any one room to communicate with inflammable material in another. No effort has been spared to render all the appointments of the operating rooms and the wards as complete as possible and thoroughly in accord with the most approved ideas of modern hospital construction. The capacity of the wards is one hundred and twenty-five beds, and there are, in addition, a large number of private rooms, each of which has its own bath-room. The kitchen, a model of its kind, is next to the roof and is perfectly ventilated. There is a fine solarium, and one of the most attractive features of the building is a roof garden, inclosed in glass at this season, which is bright with palms, vines and pots of blooming flowers. The house-staff will consist of six physicians, assisted by a corps of thirty nurses. The hospital as it stands represents an expenditure of more than $1,000,000, and the actual cost of the building which faces both on 109th and 110th streets, was $800,000.

CLEMENCEAU.

In connection with the present strained relations between state and church in France, the fact that the real leader of the French government has been a physician is of interest, and it also may be of interest to our readers to learn what manner of man he was as a physician, especially as part of his medical life was passed in America.

George Clemenceau was born sixty-five years ago in Brittany. Some forty-five years ago he studied medicine with zeal and distinction and was interne in both the Nantes and Paris hospitals. When he was twenty-two he wrote a work, still highly prized, on "Anatomic Conceptions and General Physiology." He bitterly opposed Louis Napoleon and his party, and was in consequence peremptorily "invited" to leave the country. In 1868 he came to New York City, being the possessor of a very fine collection of surgical instruments and of but little else than this. He began work at once, and laid the foundation of a very substantial practice in the French colony, south of Washington Square. At this time he taught in a young ladies' seminary the history of literature. He also registered his intention to become an American citizen. The Franco-Prussian War and the Empire's fall with Sedan determined him, however, to return to France. Lacking the means to this end he sought to borrow of a professional brother, offering his beautiful instruments by way of security; the money was gladly lent him and he was told to keep his instruments and to take them home with him.

On his return he plunged at once into politics and entered the Chambers in 1876; he has since then been ever a masterful, consistent and in general a wholesome force in French public affairs. Year by year, he has, in his own individuality, continued to raise politics to the dignity of statesmanship. There is nothing in his parliamentary career of thirty odd years to cast a shadow on the sincerity of his motives, not even the accusations of complicity in the Panama scandals.

Although at first opposed to Dreyfus he soon became an ardent advocate of his innocence.

Of an old Vendean Huguenot family, he has always exhibited a rare combination of gallic *bonhomie* with happy views of life and a sympathetic knowledge of the heart, such as humane physicians acquire. We read with pleasure of his ardent and enterprising temperament, his habits of study and observation, his way of taking the rough and the smooth as they come, a spirit apparently light, but deeply serious at bottom. True happiness, to his notion, lies in actual cerebration at the service of true ideas such as can rightly excite one's enthusiasm. He defends his idealism with common sense and reason. When not concerned in law making he has made many excellent contributions to literature,— short stories, sketches of travel, essays and novels. His novel "*Les Plus Forts*" is a study of manners, aims and conditions, which only a man with the most varied culture and with a broad knowledge of and a sympathy for the world could have written. As an orator he is said to be very effective, and his defense of his position against the ultra socialists in the French Chamber last summer was very clever.

He is and always has been a good fighter, but although, according to tradition, the name means "little clement," he has on several occasions, especially in recent years, shown that a capacity for conciliation is not foreign to his nature.

He married an American woman, but the union did not result happily. Clemenceau is a good example, and perhaps the most striking of a social phenomenon by no means uncommon in France, *viz.*, the "doctor" as an active force in public affairs. Within five years two physicians have held the position of head of the French Cabinet.

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HUNTING FATALITIES.

We have come to expect each year at the end of the hunting season a certain number of deaths and injuries from the careless use of firearms. This year in the New England States alone nineteen persons were sacrificed,— six in Massachusetts, eight in Maine, three in New Hampshire and two in Vermont. Of this number, however, four deaths occurred from exposure, one from heart disease, one from a self-inflicted shot and the remaining thirteen from other hunters. Two of these were women. In addition to those killed upwards of a dozen others were injured more or less seriously by the accidental discharge of weapons.

The reasons given for this somewhat extraordinary state of affairs are various. Rustling in the undergrowth mistaken for an animal, slipping of the gun, nervousness in fingering the trigger and occasionally absolute carelessness were all held responsible. It is interesting to note that most of the accidents occurred during October before the foliage had fallen. It is also noteworthy that in no case in which the hunters were under the charge of a professional guide did an accident occur. The details of the various accidents are interesting as showing the danger of placing firearms in the hands of inexperienced, young or hyper-excitable persons. Precautions much more stringent than those now in force should be taken to prevent this yearly needless loss of life. No doubt a certain number of such fatalities will always occur so long as the law permits any and every body to carry firearms, but that the danger may be minimized by more stringent regulations regarding the employment of guides and the use of firearms in the open by the youthful and inexperienced is not to be questioned.

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MEDICAL NOTES.

The Death of Dr. Lapponi. — Dr. Lapponi, who came into much prominence in relation to the illness of the late Pope, Leo XIII, died in Rome Dec. 13. It is stated that shortly before he died he expressed the opinion that the present Pope would live longer than his predecessor, Leo XIII.

A Centenarian. — Miss Adeline Thompson, said to have been born in 1803, died in Philadelphia, Dec. 7. Miss Thompson was prominent in the social world during her early and middle life and was connected with many persons of importance and distinction. She retained her faculties to a remarkable degree up to a few days before her death.

The Suppression of Noise. — It is announced that New York is about to have a society for the suppression of unnecessary noises. The object of this society, which was founded by a woman, is to take measures to suppress unnecessary noises as menacing to health and general comfort. Among those on the advisory board are Dr. Thomas Darlington, Commissioner of Health, Dr. C. L. Dana, President of the Academy of Medicine, and Dr. J. W. Brannan, President of the Hospital Board. Various men distinguished in other walks of life are also members of the advisory board.

The Nobel Prizes. — The Nobel prizes for this year have been awarded as follows: Prof. J. J. Thomson, professor of physics at the University of Cambridge, England, for researches into the nature of electricity; Prof. M. Mossen, professor of chemistry at the Sorbonne, for his experiments in the isolation of fluorine and matters relating thereto; Profs. Ramon y Cajal, of Spain, and Golgi, of Italy, for work on the anatomy of the nervous system; Prof. Carducci, professor of Italian literature at the University of Bologna, in literature. President Roosevelt was the recipient of the peace prize. All of those honored, with the exception of President Roosevelt and Professor Carducci, received diplomas and gold medals in person from King Oscar of Sweden at the formal exercises held Sept. 10 in Stockholm. This is the first year in which a prize has been awarded either to an American or an Italian.

Longevity in Europe. — According to the investigations of German statisticians in regard to longevity in Europe, the German empire, with a population of 55,000,000, has but 78 persons who are more than one hundred years old. France, with a population of fewer than 40,000,000, has 213 who have passed their hundredth birthday. England has 146, Scotland 46, Denmark 2, Belgium 5, Sweden 10, and Norway, with 2,300,000 inhabitants, 23. Switzerland does not boast a single centenarian, but Spain, with about 18,000,000 population, has 410. The most amazing figures come from the troublesome, turbulent region of the Balkan peninsula. Servia has 573 persons who are more than one hundred years old, Roumania has 1,084 and Bulgaria 3,883. In other words, Bulgaria has a centenarian for every hundred of its inhabitants, and thus holds the international record for old people. In 1892 there died in Bulgaria 350 persons who had lived for more than a century. The death of Jean Mignot, of Montpont, who was probably the oldest Frenchman, has recently been reported as occurring at the age of one hundred and seven years. — *Med. Record.*

The Thirteenth Annual Report of the Craig Colony for Epileptics. — The thirteenth annual report of the Craig Colony for Epileptics just issued contains 106 pages. It is profusely illustrated in a way to show all sides of colony life.

The colony embraces 1,895 acres of land, comprises at present 76 houses, with 6 more going up for 200 additional patients. The present census is nearly 1,300 all told; when the new buildings are completed, the total census will be approximately 1,500. There are now about 1,000 epileptics in the state who cannot be received because there is no room.

A new departure in Dr. Spratling's report this year is a special section devoted to scientific papers and reports made up of articles contributed by members of the medical staff. That the amount of surgical work alone performed at Sonyea is considerable is shown by the fact that anesthetics for surgical purposes were given one hundred and seventy-two times during the year. A modern hydrotherapeutic plant after the plans of Dr. Baruch has been installed, and the plant has been a valuable feature in the treatment of certain types of epilepsy.

The net per capita cost of keeping each patient at the colony last year was $141.38. We believe this is about $35 a year less than keeping an insane person in a state hospital for the insane. There is a movement on foot initiated at the colony to establish a second colony for epileptics nearer New York City.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Dec. 12, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 54, scarlatina 27, typhoid fever 16, measles 9, tuberculosis 27, smallpox 0.

The death-rate of the reported deaths for the week ending Dec. 12, 1906, was 19.32.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Dec. 8, 1906, was 254, against 237 the corresponding week of last year, showing an increase of 17 deaths and making the death-rate for the week 21.99. Of this number 138 were males and 116 were females; 246 were white and 8 colored; 154 were born in the United States, 98 in foreign countries and 2 unknown; 53 were of American parentage, 170 of foreign parentage and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 65 cases and 3 deaths; scarlatina, 38 cases and 0 deaths; typhoid fever, 13 cases and 1 death; measles, 32 cases and 1 death; tuberculosis, 36 cases and 26 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 36, whooping cough 1, heart disease 31, bronchitis 3 and marasmus 6. There were 12 deaths from violent causes. The number of children who died under one year was 52; the number under five years 69. The number of persons who died over sixty years of age was 65. The deaths in public institutions were 83.

There were 5 cases and 4 deaths reported from cerebrospinal meningitis during the week.

Typhoid Fever. — In the *Monthly Bulletin* of the Massachusetts State Board of Health for October an admirable statement is given of the recent outbreak of typhoid fever in the towns of Natick, Wellesley and Needham. This statement should be of value to physicians and health authorities in general, as a clear presentation of the proper method of investigating the origin of epidemic typhoid fever.

State Care of Tuberculosis. — A meeting of physicians and laymen was held at the State House in Boston Dec. 10, before the special commission appointed to investigate the problem of state treatment of advanced cases of tuberculosis. Dr. Henry P. Walcott, chairman of the State Board of Health, presided, and the general opinion was expressed by many of the speakers that the state should provide accommodations for consumptives at all stages of the disease and should pay the cost of treatment of advanced cases. In general, small cottage hospitals were preferred to large institutions. We shall very probably have occasion to revert to this question again. The members of the commission are, Dr. H. P. Walcott, chairman, Dr. Charles S. Millet, secretary, Messrs. Charles H. Porter, Charles H. Adams, J. R. Brackett, and Dr. Adam S. MacKnight.

Dedication of Instructive District Nursing Association Home. — A new home for the Boston Instructive District Nursing Association was dedicated last week with appropriate ceremonies. The building is at 561 Massachusetts Avenue, and is well adapted for the use to which it will hereafter be put. This association has done admirable work for the past seventeen years and has heretofore had absolutely inadequate quarters in Park Square. The possession of this home should still further increase the efficiency of this devoted band of workers among the poor.

NEW YORK.

A Centenarian. — Jeanette Rothschild, a patient in the Long Island State Hospital for the Insane at King's Park, died from pneumonia on Dec. 6, at the alleged age of one hundred and three years. She had been an inmate of various institutions for the past fifty years, and is said to have been fifty-three years old when first committed.

Death from Tetanus or Fright. — A curious case of death from tetanus of non-septic origin is reported from Paterson, N. J. The patient, a young married woman, said to have been in good health, while shopping in a department store in New York, took an express elevator from one of the upper floors, and was overcome with fright in consequence of the rapid descent. On reaching her home she was still suffering from severe nervous shock, and although medical aid was promptly summoned, the state of shock persisted

Tetanus presently developed, and death resulted within a week.

Secretary of the Smithsonian Institution. — Henry Fairfield Osborn, Da Costa Professor of Zoölogy in Columbia University, has been elected secretary of the Smithsonian Institution, Washington, in the place of the late Prof. Samuel P. Langley. Professor Osborn is regarded by the regents of the institution as the most eminent zoölogist and paleontologist in America, and, in addition to the position which he holds at Columbia, he is at present curator and first vice-president of the American Museum of Natural History and paleontologist of the United States Geological Survey.

Anniversary of Presbyterian Hospital. — The thirty-eighth anniversary of the Presbyterian Hospital was celebrated on Dec. 8. The nannual report showed that the total expeses of the year were $247,546, while the total current revenue was $230,853. An interesting part of the report was the following: "One of the most notable changes in our hospital treatment during the year has been the establishment of an open-air ward on the roof of the medical building. On many days every case in the children's ward was sent to the roof. By all cases is meant pneumonia in all stages, post-operation cases, and others. All pneumonia cases in the height of fever were regularly on the list to go to the roof for six hours on pleasant days. That did not mean avoiding winds or cold, with sunlight, but avoiding rain or snow. Such open shelters as we are beginning to put on our roof promise great advance in saving and strengthening the ill."

Mortality During November. — The weekly reports of the Health Department show that the mortality in the city during the month of November represented an annual death-rate of 16.61, as against 16.52 in October and 16.42 in November, 1905. The corrected death-rate excluding non-residents and infants under one week old, was 15.42. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from typhoid fever declined from 23.2 in October to 18.5 in November the weekly average from malarial diseases from 1.8 to 1; from whooping-cough, from 10 to 5.75; from pulmonary tuberculosis, from 166.4 to 164.75; from diarrheal diseases, from 125.6 to 43.5; from diarrheals under five years, from 117 to 37.75; and from cirrhosis of the liver, from 25 to 20.5. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from measles increased from 2.2 to 4.25; from scarlet fever, from 3 to 4.25; from diphtheria and croup, from 23.2 to 37.5; from influenza, from 0.6 to 3.25; from acute bronchitis, from 18 to 20.25; from pneumonia, from 74.8 to 112.5; from bronchopneumonia, from 75.2 to 91.25; from cancer from 57.8 to 60.25; from apoplexy, congestion and softening of the brain, from 52.8 to 56; from organic heart diseases, from 107.6 to 113; and from Bright's disease and nephritis, from 102.2 to 114.75.

Extermination of Mosquitoes. — Dr. Doty, health officer of the port, who for two or three years has been waging war against the mosquito on Staten Island, and who a year ago received an appropriation of $17,000 from the Board of Estimate and Apportionment for draining marshes and other work in this connection, makes the announcement that his experiments have succeeded beyond his expectations. As a result of his efforts, the *Culex solicitans*, or striped-legged mosquito, which was formerly a great pest there, has practically disappeared from the island. The anopheles has been found more difficult to deal with, but he hopes eventually to accomplish the extermination of the whole mosquito tribe.

Obituaries.

ALEXANDER E. MACDONALD, M.D.

Dr. Alexander E. Macdonald, one of the best known alienists in New York, died on Dec. 7. He was born in Toronto, Canada, in 1845. He was graduated from the Upper Canada College, and commenced his professional studies at the Toronto Medical University. These were completed in the medical department of the University of the City of New York, from which he was graduated in 1870. From the beginning of his professional career Dr. Macdonald devoted his attention especially to diseases of the mind and nervous system. Shortly after his graduation he was appointed a resident physician at the city asylum for the insane on Blackwell's Island, and in 1871 was made Chief of Staff at that institution. After the transfer of the care of the insane to the state he was appointed superintendent of the Manhattan State Hospital, on Ward's Island, a position in which he served for a number of years. In 1874 he was appointed to the chair of medical jurisprudence in the New York University, and in the following year was made professor of psychological medicine. He was president of the American Medico-Psychological Association, and for many years his services were in constant demand in the courts as an expert alienist. Aside from his specialty, Dr. Macdonald took an active interest in the affairs of the medical profession in general, and at the recent International Medical Congress at Lisbon he was one of the delegates from the Medical Association of the Greater City of New York.

ALONZO GARCELON, M.D.

EX-GOV. ALONZO GARCELON, of Maine, died from accidental gas asphyxiation Dec. 8, at the age of ninety-three. He was born in Lewiston, Me., in 1813, and entered Bowdoin College in 1832. After graduation he combined school teaching with the study of medicine. He attended the Dartmouth Medical School for a short time, but completed his medical education at the Medical College of Ohio in Cincinnati. On his return to Lewiston, he at once entered practice and attained distinction in his profession. He was a former president of the American Medical Association.

In politics he was originally a Republican, but following the war he changed his allegiance to the Democratic party, and in 1879 he was chosen by the legislature for the governorship of Maine, since there was that year no choice of governor by the people. Previous to his election as governor he had represented his native city in the legislature, was at one time a member of the Maine Senate, and served as surgeon-general of the state during the Civil War. As governor he showed tact and judgment in difficult situations, and was also prominent in many business and educational enterprises. He was twice married and was the father of five children.

Current Literature.

THE JOURNAL OF EXPERIMENTAL MEDICINE.

OCT. 12, 1906.

1. *EYSTER, J. A. E. *Observations upon Cheyne-Stokes Respiration.*
2. *NOGUCHI, H. *Experiments with Anticrotalus and Antimoccasin Sera.*
3. *BUNTING, C. H. *Experimental Anemias in the Rabbit.*
4. HITCHENS, A. P. *An Improved Syringe for Injecting Precise Amounts.*

1. Eyster's article is an extended account of the investigations previously reported in the *Bulletin of the Johns Hopkins Hospital*, September, 1906, reviewed in the BOSTON MEDICAL AND SURGICAL JOURNAL, Sept. 27, 1906

2. Noguchi has experimented with the venom of the rattlesnake and of the moccasin and produced antivenins for each. These antivenins proved capable of saving the lives of poisoned guinea pigs if given before the stage of extreme prostration. They also prevented the hemolytic action of the venom *in vitro*. These antivenins were highly, but not absolutely, specific for the venins for which they were prepared. An antivenin for daboia venom had some neutralizing power for both crotalus and moccasin venoms.

3. Bunting's theory and observations are extremely suggestive in their bearings upon grave anemias in man. The red bone marrow consists of a patchwork of groups of cells of two forms, some having in their centers indifferent myeloblasts, surrounded by a layer of myelocytes, surrounded in turn by a laver of polymorphonuclear cells; other groups have at their centers indifferent myeloblasts, surrounded by layers of megaloblasts, surrounded by intermediate red cells and normoblasts, with a peripheral layer of mature red cells. Into the experimental animals hemolytic poisons were intravenously injected. The animals were killed and their bone marrow examined; this showed evidence of great destruction of the peripheral portions of these blood forming centers. Blood examination after smaller injections showed the presence of normoblasts and of myelocytes; the blood after repeated injections presented the appearances typical of pernicious anemia. Bunting concludes that nucleated red cells in the blood are evidence of injury to the bone marrow by which the peripheral layer of mature erythrocytes has been removed or destroyed, megaloblasts appearing in destructions of greater extent. Following such injuries, perhaps as an attempt at repair, atypical forms of erythrocytes appear, especially macrocytes formed directly from megaloblasts without passing through the normoblastic stage. These changes appear only when the hemolytic agent is given intravenously; if it is given subcutaneously its slower absorption produces only an anemia of the "secondary" type.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOV. 24, 1906.

1. SMITH, C. A. *The Cause of the Dermatitis of Ground Itch (Uncinariasis).*
2. *MOSHER, H. P. *The Examination and Surgery of the Upper End of the Esophagus.*
3. PLUMMER, E. M., and GERMAIN, H. H. *A Modification of the Simple Mastoid Operation.*
4. *RHEIN, H. W. *A Pathologic Study of Paralysis without Gross Anatomic Change.*
5. *ANDREWS, F. T. *Hernia of the Ovary and Tube.*
6. *BULLARD, W. N. *Affections of the Spinal Cord in Epileptics.*
7. *UPSON, H. S. *Manic-Depressive Insanity and Visceral Disease.*
8. POTTER, N. B., *et al.* *The Opsonic Index in Medicine.* (Continued article.)
9. *ROBERTSON, C. M. *Certain Facts Concerning Faucial Tonsils.*
10. *GRADLE, H. *The Odor as a Guide in Treatment of Chronic Suppuration of the Middle Ear.*
11. *BISHOP, L. F. *Constitutional Low Arterial Tension in Children.*

2. Mosher describes the anatomy of the esophagus, its anomalies and pathological conditions, particularly stricture, carcinoma and foreign bodies. For the examination of the upper end of the esophagus he has devised a form of bivalve speculum, through which also certain operative procedures can be accomplished.

4. Rhein carefully reviews the theories held and lesions observed in uremic paralysis and allied conditions. He concludes that in many cases of paralysis without gross lesions, a careful histological examination will detect small areas of softening. In other cases he believes that distention of the perivascular spaces with fluid is the cause of the paralysis, this condition occurring especially in uremia and in arteriosclerosis. Syphilis is also a prominent cause; in the seven cases which form the basis of the article, six with certainty, and the seventh in all probability, showed the presence of cerebral syphilis.

5. Andrews has collected 88 cases of inguinal hernia and 5 cases of femoral hernia containing an ovary and tube.

6. Bullard calls attention to the lack of study directed toward the spinal cord in autopsies upon epileptics. Southard reports Marchi degenerations in almost every case.

7. Upson in considering manic-depressive insanity, speaks of the influence of visceral conditions upon the emotions even in health as a factor which when exaggerated may be active in the production of either the elated or the depressed states in mental derangement. The disease is usually a recurrent one, and is commonly associated with defective hereditary endowment; but its immediate origin, he maintains, lies in visceral dis-

orders, especially gastric and intestinal, through which the mental disease is to be treated.

9. The tonsils, according to Robertson, have an intimate connection with the cervical glands, and through them with the bronchial glands, which in turn communicate with the thoracic duct. Tonsils removed for any cause have been tuberculous in 8% of the author's cases, and in 6% of the 760 cases collected by Grober. The tonsils are thus a source of tuberculous infection, which may extend to the cervical glands, to the lungs or to the whole body. Tuberculous tonsils must be thoroughly removed; without their removal operation upon the cervical glands will fail. When the cervical glands are infected, they too should be removed in addition to the tonsils, or pulmonary tuberculosis will still develop in a large percentage of cases. The technic and instruments for complete removal of the tonsil are described. Robertson uses ethyl chloride as an anesthetic.

10. Gradle believes the odor of the discharge of an ear during treatment to be an index of the efficiency with which the treatment is reaching the source of the discharge. In some cases it disappears in a few days with syringing and insufflation of boric acid powder. In other cases deep packing with dry gauze will succeed. If the odor has failed to diminish after three weeks of this treatment, the case can be cured only by operation.

11. Bishop describes a condition of constitutional low arterial tension in children, not dependent upon heart weakness, probably nervous in origin. Children with this condition are subject to catarrhal and skin diseases, nervous disorders, fainting attacks, etc. They improve on active exercise and stimulating environment, and should not be subjected to the restraints advised in heart disease.

THE LANCET.

Nov. 17, 1906.

1. Moore, N. *History of the Study of Clinical Medicine in the British Islands.*
2. *Brunton, L. *An Address on Longevity and the Means of Attaining It.*
3. *Dudgeon, L. S., and Sargent, P. W. G. *The Bacteriology of Aseptic Wounds.*
4. Tilford, E. D., and Falconer, J. L. *Delayed Chloroform Poisoning.* A clinical study with report of three fatal cases.
5. Little, E. M. *Some Contributions to the Orthopedic Armamentarium.*
6. Struthers, J. W. *A Case of Chronic Intussusception with Complete Inversion of the Vermiform Appendix.*
7. Giles, B. F. *On the Increased Mortality in England and Wales from Kidney Diseases with Special Reference to Boron Preservatives as a Factor Therein.*
8. Toss, R. *Malaria in Greece.*

2. This paper is an interesting essay on the pathology of old age and the measures necessary to be taken to prevent its premature arrival. Brunton speaks of the increased susceptibility to bronchial disorders and the greater import of such affections at this time. He emphasizes the need of avoiding dust and draughts, describes proper clothing for old age and the need of increasing body resistance by moderate exercise, simple, non-proteid diet and temperance in all things.

3. Dudgeon and Sargent give the results of examination of 50 consecutive cases of aseptic wounds, chiefly herniæ, varicose veins, etc. Soap and water and carbolic 1:40 were used for sterilizing hands, skin and instruments. Rubber gloves were used. In every case primary union occurred. Cultures were taken from the wound and from the skin at time of operation; petri dishes were exposed during the operation, and from one to six days later additional cultures were taken from the exudate and from the sutures. The petri dishes showed many moulds and sarcinæ but few bacteria. Cultures from the wound at time of operation were sterile in 26 out of 45 cases; from the skin in 6 out of 45. From the sutures removed later only twice out of 45 were cultures sterile, while of the exudates examined at this time 24 were sterile. The staphylococcus albus was the constantly prevailing organism; this they consider to be the cause of the so-called "aseptic fever." They think that this organism plays an active part in non-suppurative inflammations and rather than forming pus, inhibits the action of other true pyogenic organisms.

British Medical Journal.

Nov. 17, 1906.

1. *Robson, A. W. M. *On the Operative Treatment of Ulcer of the Stomach and Its Chief Complications, with Indications, Limitations and Ultimate Results.*
2. *Moynihan, B. G. A. *Operations upon the Lower Part of the Common Bile Duct.*
3. Hall, B. *Self-Restraint in Surgery.*
4. Littlewood, H. *A Case of Suprapubic Lithotomy with Enucleation of the Prostate in an Aged Patient: Recovery.*
5. *Thomson, St. C.; Roe, T. O.; McDonagh, G. R.; Frees, O. T. *A Discussion on the Treatment of Deviations of the Nasal Septum.*
6. Jones, H. E., and Holland, T. *Demonstration of an Exostosis of the Frontal Sinus and a Skiagraph of the Same.*
7. Mosher, H. P. *Demonstrations.*
8. *Smurthwaite, H. *Headache: Pathological Conditions of the Middle Turbinal a Causal Factor.*
9. Goldsmith, P. G. *Some Unusual Cases of Frontal Sinus Suppuration.*
10. Tilley, H. *Some Considerations upon Certain Factors in the Diagnosis and Treatment of Suppurative Lesions in the Nasal Accessory Sinuses.*
11. Loeb, H. W. *A Study of the Anatomy of the Accessory Sinuses of the Nose, based upon Reconstruction of Two Heads.*
12. Coakley, C. G. *Skiagraphy as an Aid in the Diagnosis and Treatment of Disease of the Nose with Exhibition of Plates.*
13. Richards, G. L. *Two Cases of Abductor Paralysis.*
14. Jones, H. E.; McKernon, J. F. *A Discussion on the Indications for the Ligation of the Internal Jugular Vein in Otitis. Pyemia.*
15. *Smith, S. M. *The Pathogenic Influence of Aural Lesions in Systemic Disease.*
16. Bacon, G. *To What Extent is it Advisable to Adopt Conservative Methods in the Treatment of Aural Diseases?*
17. Blake, C. J. *The Value of the Blood Clot as a Primary Dressing in Mastoid Operations.*
18. Bryant, Alice G. *The Use of the Cold Wire Snare in the Removal of Hypertrophied Tonsils.*

1. Robson says that one third of all cases of gastric ulcer treated medically succumb to the disease or to one of its complications, while of the "cured" cases two thirds relapse; on the other hand 90% of cases treated surgically are completely relieved. In every case medical treatment should first be tried and the diagnosis should be perfectly clear. Direct excision is dangerous, difficult and often impossible; with improved surgical technic it should be more and more advisable. The results of pyloroplasty show too many relapses to recommend this operation. He advises gastro-enterostomy with the posterior "no loop" method. Of his 210 cases 202 recovered, a mortality of 3.8%. Cases of perforation operated within twelve hours gave a mortality of 25%. For pyloric stenosis surgical treatment alone is of value; likewise for gastric tetany. An hourglass stomach should never occur. Perigastric adhesions demand operation only for pain or incomplete emptying of the stomach.

2. Operations on the middle and lower thirds of the common bile duct are not common. Moynihan describes the anatomy of this region. He describes in detail, with illustrative cases, two operations, one where the duct is opened, transduodenal choledochostomy, and the other where the ampulla is opened, duodeno-choledochotomy.

5. Thomson describes the disadvantages of former operations on the nasal septum. He believes the submucous operation to be the only good one. He uses cocaine and adrenalin locally before operation for purposes of anesthesia. Through a small incision he strips off mucosa and perichondrium, chisels off spurs, etc., straightens the septum and sews up the wound.

8. Smurthwaite, reviewing the various causes of headache of nasal origin, speaks of a displaced middle turbinate

bone as an important factor. This presses on the septum, and irritates various branches of the second division of the fifth nerve causing supra- and infra-orbital pain.

15. Smith dwells on the frequency with which a local suppurative focus apparently healed or latent is a cause of general disturbance. The mouth and ear passages are the commonest channels of entrance for bacteria, and the middle ear a favorite site for local processes. Out of 100 autopsies on infants only 9 were free from middle ear disease. It is one of the commonest complications of systemic disorders, such as typhoid, tuberculosis, syphilis, etc. A septico-pyemia is the commonest systemic condition caused by middle ear disease. He describes its course, symptoms and complications, and reports illustrative cases.

THE EDINBURGH MEDICAL JOURNAL.

NOVEMBER, 1906.

1. *FENWICK, W. S. *Displacements of the Stomach and Their Effects upon Digestion.*
2. *HOLDANE, P. S. *A Special Consideration of the So-Called "Pancreatic Reaction."*
3. FOWLER, J. S. *A Case of Infantile Myxedema.*

1. After briefly describing the anatomical relations of the stomach, the writer describes the various displacements. An upward displacement may follow any shrinking process in the lung or an abdominal tumor. Its effect is generally to lessen the capacity of the organ. Of the vertical displacements there are three varieties: the angular, the fish hook and the straight form. The first is most common but not important. The fish-hook variety is when the pylorus is in its normal position but points upwards; the straight form is rare, it is due to a stretching of the duodeno-hepatic ligament. He describes the causes, especially the part played by corsets, and advises as to treatment. Gastroptosis is usually associated with displacements of the other abdominal organs. In a series of cases suffering from other diseases this condition was found in 6% of the males and 33% of the females. He speaks of the causes, — post-febrile debility, ovariotomies, often mitral stenosis in women, etc., and describes the symptoms under three heads: dyspeptic, bilious and asthenic. It is rarely cured. Surgical treatment suggested in 1894 by Duret is of little use.

2. This is a careful and thorough consideration of Cammidge's test of the urine for pancreatic disease. It is based on the hypothesis that in pancreatic disease there is fat necrosis; that this fat splits into its radicals fatty acids and glycerin, the latter being excreted through the kidneys. He concludes (1) that the test as a diagnostic indication for cases of pancreatic disease is of no value whatever. (2) It is often positive in normal urines. (3) The occurrence of the crystals on which the test is based depends on the degree of concentration.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 46.

NOV. 15, 1906.

1. *KUTSCHER, K. H. *Agglutination of Meningococci.*
2. *UFFENHEIMER, A. *Further Studies on the Transmigration of Bacteria through the Wall of the Intestine.*
3. *WEICHARD, W., and PILTZ, W. *Experimental Studies on Eclampsia.*
4. *WICHERN, H. *A Case of Acute Diffuse Bronchiolitis in an Adult.*
5. *RIEBOLD, G. *Serous Meningitis.*
6. *SCHWERIN. *Preliminary Communication on the Results of Treatment of Septic Appendicitis with Streptococcus Serum.*
7. BARTH, E. *Diplacusis Disharmonica.*
8. *OGATA, M. *Preliminary Communication on the Etiology of Tsutsugamushi.* (Concluded.)

1. Kutscher describes a case in which the lumbar fluid showed the presence of bacteria resembling in all other respects the meningococcus, but which were not agglutinated by a specific meningococcus serum, when the test was performed in the usual way at a temperature of 37° C. When he employed, however, a temperature of 55° the reaction was positive. This shows that the higher temperature is more favorable for agglutination, and should be employed, therefore, in doubtful cases.

2. Uffenheimer tried feeding experiments on rabbits, using cultures of Bacillus prodigiosus. If he introduced the bacteria by the mouth and killed the animals three hours afterwards, he found the bacteria regularly in the lungs. These results are analogous to those of Schlossmann and Engel, who introduced tubercle bacilli into the stomach by means of gastrostomy, and found them in the lungs a few hours later; by this method they thought to exclude the possibility that the bacilli might accidentally reach the lung from the pharynx. Uffenheimer repeated his experiments, injecting the bacteria into the rectum, with the same results as before; the bacteria were found in the lungs in every case. The prodigiosus was also regularly present in the stomach within four hours after these injections, having passed up along the intestinal wall against peristalsis, a phenomenon which Hemmeter has demonstrated for particles of bismuth. This led Uffenheimer to try the effect of ligating the esophagus before the rectal injections, and he then obtained negative results, the lungs were free from bacteria. This proves that in his former experiments the bacteria must have passed up the alimentary tract to the pharynx, and thence along the trachea into the lungs. Kast from Ewald's clinic had previously shown that lycopodium spores introduced into the stomach would appear shortly afterwards in the mouth. These results throw doubt on the significance of the results of Schlossmann and Engel, for they did not exclude the possibility of infection by the air passages.

3. Weichardt and Piltz consider that eclampsia is caused by toxic substances which are formed by cytolysis from elements in the placenta. These substances reaching the blood-stream cause the characteristic phenomena only in those women in whose blood anti-endotoxic constituents are not present in sufficient quantity. They were able to isolate from a placenta, from which the blood had been washed, a substance which caused fatal eclamptic symptoms in rabbits. The repetition of doses less than lethal in amount caused immunity to be established.

4. Wichern reports a case of acute diffuse bronchiolitis which is interesting as occurring in an adult, and in that it was due to an infection with the pneumococcus. The case began with a chill, followed by fever with cyanosis, intense expiratory dyspnea and acute emphysema. The temperature fell by crisis on the sixth day and recovery ensued. No solidification of the lungs could be detected.

5. In this instructive article, Riebold draws the picture of acute serous meningitis on the basis of many personal observations. It is defined as an inflammation of the meninges in which the exudate remains serous to the end; it usually runs a mild course. It occurs not uncommonly in the course of acute infectious diseases (typhoid, pneumonia and influenza) and is not rare as a complication of otitis media. It also occurs as an independent diseases starting with fever and the usual symptoms of meningitis. The diagnosis is made from the characteristics of the lumbar fluid, which is sterile, clear, comes out under high pressure and contains an increased amount of albumin. In one case the lumbar fluid was hemorrhagic, a fact which is explained by the frequent presence of ecchymoses in the pia. The disease may become chronic, and may then stimulate the symptoms of brain tumor. The treatment consists in lumbar punctures, which are to be repeated as often as the symptoms return; usually one or two are sufficient. The effect of lumbar puncture is often marked and striking.

6. Very gratifying results are reported by Schwerin following the use of antistreptococcic serum (Höchst) in cases showing signs of bad general sepsis due to appendicitis and peritonitis. At operation a quantity of serum was left in the peritoneal cavity and more injected intravenously from time to time. Under its use the heart action improved, the temperature was lowered and the condition of excitement or euphoria changed to quiet sleep. The treatment with serum should act as an adjuvant to operation, but should never replace it except where the general condition makes operation too hazardous.

8. Tsutsugamushi is an infectious disease which is endemic in Japan along certain rivers. Infection takes place apparently from the bite of an insect, the ixoden. The disease begins with fever and the appearance of pustules on the scrotum or breast, which later turn into

deep ulcers. Later there appears a roseola with large spleen, bronchitis, etc.; the temperature falls by lysis at the end of two weeks; the mortality is 30%. Ogata has found ameboid protozoa constantly present in the pus from the ulcers and in the blood; he was able to grow them in pure cultures, and by injection into rabbits produced lesions similar to those seen in man. He describes the life cycle of the organism.

Münchener Medizinische Wochenschrift, No. 46, Nov. 13, 1906.

1. Gaupp, R. *The Influence of the German Laws Concerning Accidents on the Course of Nervous and Mental Diseases.*
2. Harrass, P. *The Aërobic Cultivation of So-Called Obligatory Anaërobic Bacteria.*
3. Riehl, M. *Macroscopic Asthma Spirals.* (Continued article.)
4. Ewald, P. *Pulmonary Tuberculosis and Peripheral Trauma.*
5. Birch-Hirschfeld, A. *A New Instrument for the Ligation of Deep Vessels.*
6. Roth, D. *A Case of Erysipelas of the Pharynx.*
7. *Fraenkel, E. *Infantile Scorbutus.* (Concluded.)

7. This valuable contribution by Fraenkel is based on twenty autopsies in infantile scurvy performed by him, and on his clinical observations. He describes characteristic lesions at the line of ossification between the diaphysis and the epiphygsis of the long bones, and in the ribs at the costo-chondral junction, which consist in a transformation of the lymphoid marrow into a tissue with a homogeneous ground substance and small numbers of spindle cells. This change leads to a stunted growth of the bony trabeculæ and of the cortex, with increased calcification in the diaphysis; the bone is now brittle and easily broken or distorted. He regards the hemorrhages frequently found in the medulla and under the periosteum as secondary to the hemorrhagic diathesis. He ascribes the hematuria to the same cause, for no lesions could be found in the kidneys of cases with blood in the urine. The diagnosis can be made during life by the x-ray appearances, first described by him. These consist in a shadow in the diaphysis near the line of calcification, which is always present, and in a mantle-like shadow around the shaft of the bone, which is present only where there is subperiosteal hemorrhage. One of Fraenkel's cases occurred in a boy six years old; this fact together with the great similarity of the symptoms and lesions, and the cure by similar treatment, lead him to claim that infantile and adult scurvy are one and the same disease.

Perinephritis as a Cause of Symptoms Simulating Those of Stone in the Kidney. Tyson (*Univ. Penn. Med. Bull.*, November, 1906) describes perinephritis as "an inflammation of the capsule and other tissues surrounding the kidney of such nature as to produce contraction or cicatricial markings in the capsule whence also the cortex of the kidney may be more or less invaded." He mentions four cases seen by him in the past three years in which symptoms suggested renal colic and at operation dense adhesions were found between capsule and kidney but no stone. In all of these, decapsulation was performed and relief of the symptoms resulted.

The Nucleus Test in Pancreatic Disease. Steele (*Univ. Penn. Med. Bull.*, November, 1906) reports the results of his observations upon the nucleus test. This test, first described by Adolf Schmidt, is based upon the belief that cell nuclei are digested by the trypsin of the pancreatic juice, and not by other digestive ferments. Thus in the absence of pancreatic secretions all nuclei of meat will be found in the stools. To test this small balls of meat are given inclosed in gauze, later recovered in the feces and examined in microscopic sections. Normally only a few nuclei remain in the center of the ball, whereas in absence of pancreatic secretion the nuclei persist except in the outermost layers. Steele concludes that the test is a rough indication of the presence or absence of pancreatic secretion; preservation of the nuclei, however, as in one case of achylia gastrica reported, may occur from general lowering of all digestive functions.

The Origin of Pancreatic Diabetes. Gilbert and Lereboullet (*Rev. de Méd.*, Nov. 10, 1906) compare the process found in the pancreas to that in the liver where there is a fibrous sclerotic degeneration known to follow an ascending infection from the gall passages. The fact that, as in the liver, the process in the pancreas is often associated with stones in the ducts, is in favor of this view. They describe three cases where fibrous tissue had cut off some lobules, and thickened the walls and narrowed the lumina of blood vessels and of the ducts. In certain families there is, they say, a tendency to this auto-infection from the digestive tract, and they cite cases where, for instance, a mother had biliary colic, one son gallstones, another diabetes and a third rheumatism and later diabetes.

Not all cases of pancreatic sclerosis cause diabetes; this only occurs when changes have gone so far as to cut off lobules and acini; the infection causing the trouble may take place years before diabetes comes on. Charren and Carnot caused diabetes in dogs experimentally by ascending infections of the pancreatic duct. In these conditions there is often a conpensatory hypertrophy of the liver just as in cirrhosis of the liver there is found a compensatory increase in the pancreatic lobules. They conclude (1) that lesions of the pancreas, an inter- and intra-acinous sclerosis, often cause diabetes; (2) that such lesions are the result of an ascending infection explained in many cases by a predisposition to digestive auto-infections; (3) that diabetes is produced only when a certain amount of damage has been done.

Correspondence.

LETTER FROM PARIS.

[*From our Special Correspondent.*]

The Opsonin Question.

Paris, Nov. 26, 1906.

Mr. Editor: You who live at home are to be congratulated on your good fortune in having had a visit from Wright, of St. Mary's, London.

At the present time he is probably the foremost man in the English medical world, from a scientific standpoint; his is a mind of singular force and originality; and there seems a strong likelihood that his opsonic method is the discovery of the widest import to physicians since that of antisepsis.

For in the productions of the bacteriologists we have long been accustomed to a merely scientific interest; but in the case of these opsonins we find something far rarer and more important, — a practical bearing on the art of healing; and in this connection there is a curious rumor current.

One easily realizes that a man does not reach Wright's prominence without encountering opposition and without conflicting with the interests of others. But it does seem incredible that his adversaries should have been unable to find a better taunt against him than that of *self-interest*, everything with which he has so far been connected having had a direct bearing on the sick and their restoration to health. He would, forsooth, have done better to waste his time on barren laboratory research, and the reading of futile papers before learned societies!

The entire English school of medicine has long had the reputation of being rather practical than scientific, —very much to its credit, in the humble opinion of the writer, who well remembers the late Professor Germain Sée saying publicly before his clinic at the Hôtel-Dieu, in reference to the English. "*Il ne faut pas leur demander de la science, ils ne savent pas ce que c'est. Mais ce sont des praticiens de premier ordre.*" But while this may be true in a general way, there is no denying that when they do drop on to something scientific it is apt to be of the first magnitude. Examples of what I refer to are too well-known to need citing.

Here abroad, and in the absence of the substance, we have had to content ourselves with the shadow, — one of Wright's assistants, as keen a man as one could meet, a firm believer in his chief, and an enthusiast as to his methods. You will hardly credit the fact that the opsonin question was to all intents and purposes unknown here, even at the Pasteur Institute, before this man's arrival. In fact, even its fundamental principles, having never been verified, were not accepted there, the opinion prevailing that Wright had only rediscovered and rebaptized bodies already known as "sensitizing substances." Besides, the whole matter was looked at askance; since, if true, it had a tendency to lessen the reputation for omnipotence of the phagocytes, the shibboleth of the Pasteur Institute, as everybody knows. True, one of the medical papers did publish two articles on the subject not long ago, but abstracted from a western medical publication the latest scientific news from London *via Illinois*, if you please!

Guided then by what I have learned from this obliging *confrère*, by what I have been able to read on the subject, and by a case under treatment by the method, I will try to give for ordinary medical readers a summary of this remarkable innovation. All matters of technique (which I will ask the proofreader to spell with a q-u-e, and not in accordance with the French of Chicago-atte-Bowe) I will set aside; I have no experience with these details, which can be found in their proper place.

Such readers as did not part with their much-thumbed Liddell & Scott on leaving college will find that opson means a sauce, relish; an opsonin (pronounce opsō′nin, not op′sonin) is then a species of ketchup, to use a homely comparison, — prepared in this instance by Dame Nature, — and the term is applied by Wright to a class of antibodies (amboceptors?) elaborated by the human system for the purpose of ridding itself of germs by which it has been invaded. These antibodies are found in the blood-serum even in normal circumstances and are specific, there being a different one for each kind of germ. Their source has not yet been determined. They act by fixing themselves on the invading micro-organisms, forming with their substance a sort of definite combination which cannot be undone, on the analogy of that which Co^2 forms with hemoglobin. The presence of an opsonin renders a germ more attractive to the phagocytes than other germs, hence the appellation "ketchup"; it consequently stimulates phagocytosis, and tends to the patient's good.

This being accepted as demonstrated (which can be done mathematically), we must next inquire in what manner the idea is applicable to medicine. The problem is this: since invading, pathogenic germs can be rendered so appetizing to the leucocytes by means of opsonic flavoring that the latter simply cannot keep away from them, is there a means whereby the production of these antibodies can be increased in a given instance?

Now experience has shown that by isolating the germ from which a given patient is suffering, growing a culture of it, heating this culture to just the temperature at which the germ is killed but at which its chemical constituents are not destroyed, testing it to see that the germs are indeed dead, and then estimating accurately a certain number of million and injecting them, — the amount of opsonin present in that patient's blood (if somewhat below normal) will in most instances first fall still farther (negative phase), then rise above the normal (positive phase), and finally slowly re-descend to the normal.

The quantity of opsonin in the blood is ascertained by determining the patient's opsonic index, which is done by comparing the rate at which a suspension of the germs in question, mixed with a little of the patient's serum, is taken up by a given number of leucocytes, with the same rate in the case of the serum of a subject supposed to be in a normal state. The method then is one that appeals to the accurate mind; it is mathematical, similar to the use of the thermometer.

Wright calls these injections of dead cultures vaccines. But this would appear to be a confusion of terms, as certainly the original vaccine, that of Jenner, was a living culture.

Such being, as briefly as possible, the general principle of the method, let us consider its practical application, which is all that interests the physician.

The first point, — self-evident, of course, — is that the method concerns infectious disorders only. But even so, what a vast horizon opens before us, and a steadily increasing one! Next, the only infections in which it can be used are those where the germ can be isolated, which is likewise self-evident. The germ in person is a *sine qua non;* we need not know its name, but we must both get it and grow it. Thus the method could not be applied to measles, or to acute inflammatory polyarthritis, though we have little doubt as to the real nature of these disorders.

Among infections, those of a chronic nature have given the best results and have formed the chief subject of research. Possibly the most satisfactory cases are: 1st, Staphylococcic infections of the skin (acne, boils, carbuncles, and particularly bad ones, of the face); 2d, localized forms of tuberculosis (skin, glands, joints, genito-urinary, and above all, lupus, for which it is at present probably the best treatment known, when combined with means for producing hyperemia with blood having a suitable opsonic index).

And here a short digression is necessary.

The regions of the body most liable to local infection are those in which the circulation of the blood and lymph is poorest. From time immemorial such disorders have been treated empirically by means tending to increase the local supply of blood: poultices, or hot fomentations, while more modern means of accomplishing the same end are steam sprays, massage, sand poultices, x-rays, Finsen, Tallermann, Bier, etc., all of which act probably in no other way than by bringing blood and lymph to a region where it is deficient. Intermittence in supply is naturally best, as each application brings up fresh opsonins to the region.

Each one of these methods insures improvement in a certain number of cases but fails in others. Why? Probably because the methods lack precision; their application is very similar to what it would be to bathe a typhoid case without the guidance of a thermometer. The necessary thermometer in the foregoing instances is the opsonic index. Cases that recover are probably those in which the opsonic index of the hyperemia artificially created was suitable; when unsuitable, no good can come of such a method; in fact even harm may be done.

Resuming, now.

Vaccine treatment has given results, as well, in torpid, localized forms of pulmonary tuberculosis, where there are no acute symptoms showing successive auto-inoculations. Here again the vaccine will probably be helped by x-ray treatment of the apex, increasing the blood supply to the region, always under control of the opsonic index.

Cases with acute symptoms and fever, where auto-inocculation is constantly proceeding, with rising and falling opsonic index, are very difficult, and require most delicate handling not to do harm; and it was undoubtedly through lack of such a guide as the opsonic index that so many disasters occurred with Koch's original tuberculin; the injections were made mechanically at stated intervals irrespective of their biological effect; and as they were no doubt often given during a negative phase, the patient's resistance fell each time lower until it reached a point from which it could not recover.

It is, again, likely that now that the use of the micrococcus neoformans vaccine is being controlled by the opsonic index, as is the case in Brussels and as will soon be the case here, different and more favorable results will be obtained in the treatment of cancer than heretofore.

The gist of this entire matter seems to be as follows: That the vaccine treatment of disease, without such a guide as the opsonic index, is as little scientific as medicine was before the introduction of the thermometer.

In acute systemic infections, — the septicemic group, — not much was at first expected of the method; these diseases had too rapid a course, the method was slow, and, besides, an acute case would take up a man's entire time, examinations being necessary twice a day, each requiring several hours. And yet, to everyone's amazement, one of the most brilliant results so far obtained with the vaccine treatment was in a desperate case of acute streptococcic ulcerative endocarditis, a disorder considered absolutely fatal. True, it absorbed the entire time of one of Wright's most talented assistants for several weeks; but imagine the triumph of such a success!

In cases of this nature the germ must always be looked for in the blood immediately after a rigor, to stand a fair chance of finding it. The blood is so strongly antiseptic that only the most virulent types of germs can exist in it at all, and these rarely in numbers for any length of time.

The drawbacks to the vaccine treatment are practically none, when it is properly applied; that is, the injections must always depend on the opsonic index. The lower this index the smaller must be the dose, always remembering that the first effect of an injection is to send the index down, and this action should be kept within certain limits or harm may result.

The most that the treatment can do in this sense is to fail. Thus a patient's system may have no reactive power left. It is doing, or has done, its very best; you will get a negative phase from an injection, but no positive rise will follow it. Again, the injection will fail in some instances because the circulation in the region diseased is so defective that the stimulated blood and lymph do not penetrate it sufficiently. This is where the hyperemic methods prove of assistance, x-rays, Bier's, etc.

The method is relatively new. It is a tedious one, requires special capacities, is difficult to grasp without actual demonstrations, upsets preconceived ideas, and has met with opposition, scoffing and indifference. Not that it is still in the experimental stage; but it has so far been employed by a few only, and on a limited scale. So that we really do not yet know of what it is capable. But if it keeps but a small portion only of its promises, it will still have been a marvellous acquisition. Fancy curing in so simple a manner as this such troublesome disorders as polymorphous acne of the face and neck, tubercular glands of the neck, tubercular cystitis, — not to speak of such dreams as septic ulcerative endocarditis. For once that the laboratory men have evolved something of practical value out of the enormous bulk of work they have put in, let us pat them on the back; for they have been a sore trial to our,patience during these last twenty-five years.

But you will want to know what bearing these new ideas will have on the general practitioner. Not a very inviting one so far as his pecuniary interests are concerned. For it is unquestionable that never in the world will he have time to use the method himself, and that it will bring him up against still another breed of specialists, in addition to the many he already has on his back. Such a class, the opsonin men, is certain to spring up as soon as the method gains headway, which it is sure to do now that the god-spell has been carried by the master himself to the different American medical centres, — Johns Hopkins, Philadelphia, New York, and Boston.

It is possible that in some chronic disorders that have been well studied, localized tuberculosis for instance, the treatment may ultimately come to be applied by routine, with only an occasional opsonic test, the state of the patient's feeling being used as a test in its place; since it has been observed that whenever the vaccine is administered at proper dose and interval the patient always finds himself subjectively better for some time afterwards. Now it has been demonstrated that this euphoria coincides with the duration of the positive phase. But whatever the future may bring, for the present we must be guided by the opsonic index.

But however much the general practitioner's opsonic index may be depressed by the aspect of the case above referred to, a certain modicum of comfort can still be derived from the following view. It seems possible that with this vaccine method we may acquire a means of at least partially stemming the resistless flood-tide of surgical advance into our domain, a wave that at one time seemed to threaten to submerge us completely. For if Wright's ideas are carried to a successful conclusion they will humble the pretensions of these arrogant "hand-workers" to an extent that may be very considerable. Fancy the *têtes* of *Messeigneurs les Chirurgiens* if the medical clan should succeed in sweeping over to their side of the table the cases of cancer and of localized tuberculosis, in this friendly little game.

Care must be taken lest confusion arise between what Wright terms his vaccine method, and the various preparations now on the market called serums. With the exception of diphtheria and tetanus, in which cases the antitoxin has been measured and standardized, all others, *all*, are unscientific and problematical, — as could have been inferred from the conspicuous way in which they have failed to produce the great effect they were destined to produce. Not only are we ignorant, with these serums, of how much antitoxin they contain, but we do not even know whether indeed they contain any at all. In fact, it is probable that if such a serum is taken during the negative phase following an injection to the animal, the serum may actually contain some of the toxins administered in the vaccine. No language is withering enough for Wright's following to express their scorn for these substances.

From a scientific standpoint it may perhaps leave some regret in the mind that Wright's treatment should not be specific, but more in the order of a tonic; for what you do with one of these injections is to encourage the patient system to produce its own specific. But let us not ask for the earth and the fullness thereof. Although we do not attain our end by a direct and brilliant stroke, we succeed, all the same, even if by circuitous means, — which will answer quite well in difficult times, *en attendant mieux*.

But the medicine of the future bids fair to be a curious profession, the way things are going now; and one wonders what Father Galen would have to say if he could be present to see cases treated by antitoxins, x-rays and vaccines.

"Spectator."

REQUIREMENTS FOR ADMISSION TO THE YALE MEDICAL SCHOOL.

Yale University Medical Department,
New Haven, Conn., Dec. 1, 1906.

Mr. Editor: Believing that you are interested in every effort to improve the grade of students entering our medical schools, I am sending you a statement of the requirements for admission to the Yale Medical School which have just been announced by the corporation of Yale University as applying to the 97th annual session beginning in September, 1909.

The essential points of the requirements are that the minimum entrance qualification will be two years' work of college grade, and that the preparation must include inorganic chemistry, physics and general biology. In view of the fact that a student in Yale College may by a proper choice of subjects secure both the B.A. and M.D. in six years the effect of these regulations will be doubtless that the great majority of those receiving the degree of M.D. at this University will receive it as a second degree. We expect this to be the case, and we hope that many will pursue more than the minimum of two years of college work. We believe, however, that the preparation involved in the college entrance requirements, and two years of collegiate work is an adequate preparation for professional study, and we do not think it desirable to make it impossible for a student to proceed to the degree with this minimum requirement in case for any reason he elects to do so.

The requirements as they will apply to college graduates, and to non-graduates are as follows:

1. Candidates who have received degrees in Arts or Science from approved universities or colleges will be admitted on presenting their diplomas or other satisfactory testimonials.

2. Other candidates must present evidence that they have complied with the entrance requirements of some collegiate institution of good standing or have passed equivalent examinations before some recognized examination board such as the College Entrance Examination Board. They must also present evidence that they have performed with credit the equivalent of at least two full years of work of collegiate grade of fifteen hours per week. Such evidence may be furnished by certificate from an institution of good standing. Candidates who have not attended institutions able to give this certificate but who have otherwise fitted themselves for the study of medicine by work of corresponding grade may qualify by examination in this University on payment of a fee of ten dollars.

All candidates for admission must furnish evidence that they have a satisfactory preparation in physics, general inorganic chemistry and general biology.

Yours truly,
Herbert E. Smith, M.D.,
Dean of the Faculty of Medicine.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 24, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,359	343	Quincy	9	0
Chicago	577	154	Waltham	2	—
Philadelphia	—	—	Gloucester	4	—
St. Louis	—	—	Pittsfield	10	3
Baltimore	218	45	Brookline	12	2
Cleveland	—	—	North Adams	9	3
Buffalo	—	—	Chicopee	8	5
Pittsburg	—	—	Northampton	1	1
Cincinnati	—	—	Medford	8	—
Milwaukee	—	—	Beverly	3	1
Washington	—	—	Hyde Park	2	1
Providence	71	21	Newburyport	—	—
Boston	190	50	Leominster	2	—
Worcester	40	7	Melrose	1	0
Fall River	31	9	Woburn	2	—
Cambridge	20	7	Marlborough	3	0
Lowell	39	10	Westfield	—	—
Lynn	27	6	Peabody	—	—
New Bedford	32	13	Revere	3	—
Springfield	20	5	Clinton	3	0
Lawrence	20	7	Attleboro	8	2
Somerville	13	3	Adams	3	1
Holyoke	8	3	Gardner	—	—
Brockton	8	1	Milford	1	1
Malden	10	2	Weymouth	7	0
Salem	16	5	Framingham	—	—
Chelsea	16	6	Watertown	1	0
Haverhill	9	2	Plymouth	—	—
Newton	11	3	Southbridge	1	1
Fitchburg	—	—	Wakefield	3	—
Taunton	14	4	Webster	—	—
Everett	6	2			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING DEC. 8, 1906.

F. T. GORDON, pharmacist. Placed on the retired list of officers of the navy from Nov. 30, 1906. Detached from Bureau of Medicine and Surgery; ordered home.

JAMES E. GARDNER, medical inspector. Ordered to U. S. S. "Charleston," Fleet Surgeon, Pacific Squadron.

M. F. GATES, surgeon. Detached from U. S. S. "Charleston"; upon reporting of relief, ordered to U. S. S. "Chicago."

C. BIDDLE, surgeon. Detached from U. S. S. "Chicago"; ordered to Naval Training Station, San Francisco, Cal.

W. B. SMITH, passed assistant surgeon. Detached from Naval Training Station, San Francisco, Cal.; ordered to U. S. S. "Raleigh."

D. N. CARPENTER, surgeon. Detached from U. S. S. "Raleigh"; ordered to Naval Station, Cavite, P. I.

A. R. ALFRED, surgeon. Detached from Naval Station, Cavite, P. I.; ordered home to wait orders.

S. L. HIGGINS, assistant surgeon. Ordered to Naval Hospital, Norfolk, Va.

F. M. FURLONG, surgeon. Ordered to Naval Hospital, Chelsea, Mass.; detached from Bureau of Medicine and Surgery.

M. K. JOHNSON, surgeon. Ordered to Norfolk Hospital.

E. J. GROW, surgeon. Detached from U. S. S. "Ohio"; ordered home to wait orders.

C. M. OMAN, passed assistant surgeon. Detached from Norfolk Hospital; ordered to U. S. S. "Ohio."

P. T. DESSEZ, assistant surgeon. Detached from Washington Barracks; ordered to Chelsea Hospital.

J. E. GILL, passed assistant surgeon. Detached from Washington Yard; ordered to U. S. S. "Dubuque."

R. G. HEINER, assistant surgeon. Detached from U. S. S. "Scorpion"; ordered to Washington Yard.

W. L. BISHOP, passed assistant surgeon. Detached from U. S. S. "Dubuque"; ordered to U. S. S. "Iowa."

W. B. GROVE, surgeon. Detached from U. S. S. "Iowa"; ordered to U. S. S. "Minnesota."

APPOINTMENTS.

DR. THOMAS J. MANAHAN has been appointed surgeon to out-patients at the Massachusetts General Hospital.

DR. FRANCIS W. PALFREY has been appointed assistant in clinical medicine at the Harvard Medical School.

RESIGNATION.

DR. F. P. DENNY has resigned from the position of assistant in clinical medicine at the Harvard Medical School.

SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — The next meeting of the New England Hospital Medical Society will be held at Hotel Nottingham, Thursday, Dec. 20, 1906, at 7.30 P.M. Section of Obstetrics. Dr. Annie Lee Hamilton, Chairman.

1. Care of Breast during Puerperium, Dr. Marion Nute. Discussion, Drs. Bond and Palmer. 2. Treatment of Eclampsia; a summary of New England Hospital cases for the past five years, Dr. Hannah Myrick. Discussion, Drs. Bond, Hamilton and Call. 3. Case of Placenta Previa, Dr. Mary Forrester Hobart. 4. Cesarean Section for Placenta Previa, Dr. Clara J. Alexander. Discussion, Drs. Palmer, Hobart and Culbertson. 5. Induction of Labor, Dr. Emma L. Call. 6. Report of a case of Rupture of a Uterine Sinus, Dr. Annie L. Hamilton.

BLANCHE A. DENIG, *Secretary*.

BOSTON MEDICAL LIBRARY AND SUFFOLK DISTRICT MEDICAL SOCIETY MEETING. — Boston Medical Library in Conjunction with the Suffolk District Medical Society, meeting, Wednesday, Dec. 19, 1906, at 8.15 P.M., in John Ware Hall. Papers: 1. Dr. Prince A. Morrow, of New York, The Control of Syphilis and Venereal Diseases. 2. Dr. Abner Post, of Boston, The Prevalence of Syphilis. Other speakers are expected to take part in the discussion. The profession are cordially invited to be present. Refreshments after the meeting.

GEORGE W. GAY, M.D.,
J. C. HUBBARD, M.D.,
R. B. OSGOOD, M.D.,
Committee on Medical and Social Meetings.

RECENT DEATH.

DR. JOHN HENRY TRENT, of Brooklyn, N. Y., died on Dec. 4. He was born in the Isle of Wight, in 1846, and came to this country in 1867. In 1876 he was graduated from the Long Island College Hospital.

BOOKS AND PAMPHLETS RECEIVED.

The Physician's Visiting List (Lindsay & Blakiston's) for 1907. Philadelphia: P. Blakiston's Son & Co.

The Medical Epitome Series. Pathology, General and Special. A Manual for Students and Practitioners. By John Stenhouse, M.A., B. Sc. Edin., M.B. Tor., and John Ferguson, M.A., M.D. Tor. Series edited by Victor Cox Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co.

Uber eine neue Art. Von Röntgenröhren. Von Rosenthal. Reprint.

Clinical Lectures on Enlargement of the Prostate, with a Description of the Author's Operation of Total Enucleation of the Organ. By P. J. Freyer, M.A., M.D., M.Ch. Third edition. Illustrated. New York: William Wood & Co. 1906.

Minor Maladies and Their Treatment. By Leonard Williams, M.D., M.R.C.P. New York: William Wood & Co. 1906.

Medical Guides and Monograph Series. Golden Rules of Pediatrics. By John Zahorsky, A.B., M.D. With an introduction by E. W. Saunders, M.D. St. Louis: The C. V. Mosby Medical Book Co. 1906.

Lectures on Diseases of the Lungs. By James Alexander Lindsay, M.D., F.R.C.P. (Lond.), M.A. Second edition, enlarged and rewritten. New York: William Wood & Co. 1906.

High Frequency Currents; Their Production, Physical Properties, Physiological Effects, and Therapeutical Uses. By H. Evelyn Crook, M.D., B.S. Lond., F.R.C.S. Eng. Illustrated. New York: William Wood & Co. 1906.

Pulmonory Phthisis, its Diagnosis, Prognosis and Treatment. By H. Hyslop Thomson, M.D. New York: William Wood & Co. 1906.

On Retro-Peritoneal Hernia, being the "Arris and Gale" Lectures on "The Anatomy and Surgery of the Peritoneal Fossæ" delivered at the Royal College of Surgeons of England in 1897. By B. G. A. Moynihan, M.S., F.R.C.S. Second edition, revised and in part rewritten by the author and J. F. Dobson, M.S., F.R.C.S. Illustrated. New York: William Wood & Co. 1906.

The Medical Record Visiting or Physicians' Diary for 1907. New revised edition. New York: William Wood & Co.

Transactions of the Association of American Physicians. Twenty-first Session, held at Washington, D. C., May 15 and 16, 1906. Vol. xxi. Philadelphia. 1906.

Traitement Rationnel du Mal de Potts. Par Le Dr. F. Calot. Illustrated. Paris: Octave Doin. 1906. Reprint.

Original Articles.

DEATH AND SUDDEN DEATH.*

BY L. M. PALMER, M.D.,
Medical Examiner, South Framingham, Mass.

The number of interesting and puzzling cases of sudden death, that, as medical examiner, I have been called to pass upon in the last three years, has brought the subject I have chosen to-day a great deal to my mind, and I have thought that it might be of interest to you, and this is my excuse, if any be needed, to occupy your time with such a doleful subject.

Some may justly say, Tell us how to save the living. It needs no argument to prove that could we autopsy all our cases that die, we should get many surprises and be much better doctors. One of the most profitable features of my study in Vienna was the chance to see the causes of death. Every case that dies in this great hospital at Vienna is autopsied, not by students, but by expert professors. I was often allowed to examine a case one day, see it operated upon the next day and then see it posted the next or a few days after. The advantages of this you can easily understand.

The chronic sick like the poor we shall always have with us, and we often have more time than we want or need to study their cases, but the case that dies in a few hours or moments of time taxes our resources to their limit, and we cannot know too much about them. While thinking out this paper, my mind has floundered about over the whole range of physiology, toxicology, criminology, psychology, theology, and some other 'ologies that I will not mention. The result is, that I have usually come back to my starting point of gross ignorance. Death has usually been defined as absence of life, or cessation of physical life. This only puts the question back one point farther, and leads us to ask, What is life, and when does it begin and when does it end?

The usual teaching is that life begins with conception. In another sense the spermatozoa are alive before the time of conception. As to the complex processes of human life, between birth and death, our daily work as physicians has ever to do.

It is to the time, circumstances and causes of death and sudden death that I wish to call your attention at this time. I wish here and now to acknowledge my indebtedness for material for this paper to a very instructive book written by Dr. Brouardel, Director of the Morgue at Paris. It would seem at first thought as though there need be no question as to whether or no a person is dead. Ordinarily there is not, but on the other hand, at times it is of great moment to know, first whether a person is really dead or only apparently dead, and second, as to when the person actually dies. For instance, a man and his wife are drowned together, or are in some calamity or accident where the disposition of great wealth hinges upon the delicate question as to which one died first.

The popular idea is that a person dies when he ceases to breathe. We watch at the bedside for the last breath or gasp, and when that comes, we say solemnly they are gone. Are they gone? Perhaps and perhaps not. Some twelve years ago, more or less, I delivered a sickly and exhausted woman of twin boys, when by the ordinary rules of procedure she died. Sure it was, she drew her last breath and her heart stopped beating. Was I nervous, do I hear you ask? I was nearly dead myself with fright. I am inclined to think I stopped breathing, but I am sure my heart did not stop pounding. I need not tell you there was something doing about that time, and after what seems an age, my patient lived again. A drowned person draws his last breath, and yet he can be rususcitated after several hours' time.

Another class of persons regard the heart's action as the criterion. Since Galen's time, it has usually been conceded that a person or animal is dead when the heart stops beating.

Brouardel quotes a case, authentic, reported by Dr. Reynaud and Paul Laye, where a man was decapitated in their presence, and they rode in the van which carried his body from the scaffold, and yet this man's heart was beating one hour after his execution. When did this man die?

Most of the processes of living are through reflex actions. As long as they are stimulated all goes well, but when they are paralyzed all goes wrong. Let me give an illustration. Tickle the smallest possible space of a sensitive person's nose with the finest of feathers and what happens? He loses all interest in the outside world, telegraphic dispatches are sent to all reflex centers, all processes stop, his muscles become set and rigid, and finally the diaphragm makes a mighty convulsive effort, and the man sneezes a snort that will make the shingles rattle, and the agony is over.

On the other hand, suppose under some stimulation of emotion or violence, these reflexes instead of being stimulated are paralyzed; then we have what Brown-Séquard has called inhibition, with a long train of evils. For instance, if the pneumogastric nerve is excited the heart stops, and if the excitation is strong enough it may stop permanently and the person dies. Some of the functions of the body are independent of each other. The hibernating animals, for instance, can reduce the functions of respiration and circulation to a minimum. There are many illustrations of this power in the lower forms of animal life.

It is also to be seen in certain nervous conditions, such as hysteria and catalepsy, when, to the casual observer, the person may seem to be dead, and perhaps called so. This leads to the question of apparent death and the possibility of being buried alive, a possibility that makes us all shudder.

Repeated attempts are made by our state legislatures to enact further safeguards against this horrible possibility. Has it ever been done? I have no doubt it has been in a few instances that can be vouched for by medical men.

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* Read before the Mass. Medico-Legal Society, June 12, 1906.

To avoid this, different nations have established different laws concerning burial. In France the law requires them to wait at least twenty-four hours between death and burial. In Germany it is forty-eight hours, while in England it is customary to wait till post-mortem changes take place, thus remaining true to the traditions of Greece and Rome where they waited from six to eleven days. Australia usually buries on the day following death, while Spain and Portugal require only five or six hours, which led a witty man to remark that it wasn't safe to sleep too long in those countries, for fear of being put under the ground. So far as I know there are no laws in this country, as regards time necessary to keep a body.

In certain parts of Germany they have mortuary chambers, where everything possible is done to verify death, even to the placing of a bell-cord in the hands of the corpse. Though they have been used for one hundred years, the bell has never been rung but once, and that was when rigor-mortis passed off, and the hand fell down, dragging the bell cord. I will not take your time to go over the signs of death, though there are certain features of them that are intensely interesting to me and I think would be to you, but I will now call your attention to some of the principal causes of sudden deaths.

HEART DISEASE.

One of the commonest scapegoats, upon which to lay sudden deaths that we do not know the cause of, is called heart disease. The strangest part of the thing is that this diagnosis seems to satisfy everybody, excepting possibly the doctor who makes it. That disease of the circulatory system is responsible for very many sudden deaths is, however, undoubtedly true.

First. — The causes arising in the heart itself are, first, fatty over-growth on the heart, where there is a deposit of unnatural amount of fat upon the surface of the heart, which penetrates into and destroys the muscular functions of the heart. It begins early in life and gradually increases with age, and gives practically no symptoms for its detection.

Second. — Fatty degeneration of the muscle itself. Here the deposit is not upon the surface but invades the very structure, and weakens it. It shows itself in autopsy by a mottled appearance in the heart muscle and its development is slow and stealthy.

Third. — Fibroid degeneration is of the muscle itself due either to an acute or chronic myocarditis. The acute form usually accompanies infectious diseases like small-pox, diphtheria, typhoid fever and pneumonia and acute rheumatism. The chronic form is usually due to obliterating diseases of the coronary arteries, such as arterio-sclerosis.

Fourth. — Syphilitic diseases of the heart are often to be seen in large cities and metropolitan hospitals, where the *morale* of the people is not as good as in the country.

Fifth. — Rupture of the heart sometimes occurs, though rarely. Sudden death does not immediately follow, and strange as it may seem they sometimes recover. A case was reported by Moullin in 1896 of a twenty-year-old football player who received a blow over the heart, but continued to play for twenty minutes. Three weeks later after great suffering his pericardium was incised and six pints of clotted blood was removed and the patient eventually recovered.

Personally, I have never seen a rupture of the heart. Effusion into the pericardium is another cause of sudden death. This acts mechanically by interfering with the heart's action. Paracentesis has been performed for forty years or more, and often successfully, but the frequency of a fatal syncope in these cases should make every operator, guard himself by having medical assistance, and warning the family. Two cases have been recently reported where a sewing needle had worked its way through the pericardium and caused death. In aortic insufficiency, a sudden death is due either to an anemia of the brain, an anemia of the heart, because the coronary arteries cannot nourish the heart, or, third, a degeneration of the heart muscle itself.

The sudden deaths usually follow some unusual exertion or mental shock. Many sudden deaths occur from mitral and tricuspid incompetence, especially on great exertion, as running for a train. With this disease is also associated frequently bronchitis and acute edema of the lungs. Frequently also will appear an albuminuria, and the person die with uremic coma, and the physician or others lay the blame upon a hypodermic injection of morphia, when the person dies from the coma, and not the morphia.

Dr. Forbes, an Englishman, says, that out of 64 persons having angina pectoris whom he had seen, 49 of them died suddenly.

Another author who draws a finer line as to diagnosis, says that all cases of true angina die sooner or later suddenly.

The most frequent cause of sudden death is due to arterio-sclerosis, as shown by the fragile blood vessels, or the resultant aneurisms. The two organs most affected by this condition are the brain and the kidneys.

The aneurisms are chiefly of the great arterial trunks, such as the aorta. Rarely veins may rupture, and especially varicose veins, and the person die from hemorrhage.

I saw one such case a few years ago, where a woman, sixty years old, when alone, had a varicose vein of her leg burst and before she could get any help, she became too much exhausted from loss of blood to survive the shock.

Thrombosis and embolism contribute a very large number to sudden deaths. Any condition that will set up an inflammation in a vein may cause an obstruction, and any separation of a part of this thrombus may cause, through an embolism, impairment of function in some distant part to the extent of causing death. This is a common occurrence in lying-in women. Women having phlebitis are often allowed to get up too soon. One author says that out of 150 cases of sudden deaths, due to displacement of blood-clots, 112 cases of death were within two to three weeks after the thrombosis began.

Death from embolism, from separation of a blood-clot around a fracture of leg is quite common, and may occur very unexpectedly, when doctor and patient think he is nearly well.

I have seen two such cases, one of which I autopsied, and found a big clot in the pulmonary vein, shutting off a large portion of one lung; an interesting fact here is that it was no more than a pneumonia might put out of commission, but the suddenness of the onset seems to give a shock sufficient to kill. This cause also frequently occurs in cancer and phthisis. This seems to be especially true of cancer of the prostate. The idea in some of our older books on surgeries that sudden death was sometimes due also to air entering the veins, during an operation, particularly in the neck, is now practically forgotten, or regarded as untrue.

I shall now call your attention to cases of sudden deaths due to lesions of the cerebro-spinal system.

It is a matter of surprise to one who has not made a study of it, to learn how tolerant the brain is to foreign bodies, — abscesses and tumors of different kinds. For instance, several cases have been reported where autopsies have been made and pus found in the meninges of the brain and spinal cord, which gave practically no symptoms, but death came suddenly.

Abscesses of the brain also give sometimes but little indication of their severity or extent. I have autopsied two cases of abscess of the brain, one of whom died after only a few hours of sickness. The second case had been sick for many weeks, but the process was evidently going on for many months previous, and while he was working. Both cases were due to broken down gummata.

It is always well to remember the easy communicability of infectious material and disease from the middle ear to the meninges. Persons rarely die suddenly from epileptic convulsions, though it sometimes happens. There are two interesting symptoms pointing to this cause of death. First, there are spots on the neck and shoulders looking like flea bites, the conjunctivæ are injected — the tongue usually bitten, and the bronchial tubes filled with mucus. Second, there remain from time of death a stiffness of the fingers, wrists or elbows or some other place that was convulsed.

There is another large class of cases where sudden death is caused by what is called by Brown-Séquard inhibition. This may be set up by a slight cause and many illustrations could be cited to illustrate it; for instance, death has been caused by the sting of a bee, the extraction of a tooth, the opening of a felon, the lancing of an abscess of the neck, the breaking of a bone, a blow over the larynx, over the nape of the neck, epigastrium, tapping of a hydatid cyst, the passing of a sound and so on through nearly the whole list of things, that the busy doctor is doing nearly every day of his life, and in none of such cases would a post-mortem show anything abnormal.

Trousseau says, in his clinical lectures, that women have been killed by tickling the soles of their feet. The examples of the fatal effects of grief, shock from good or bad news, excessive joy, are all too well-known and familiar to need mention. The effect of the two extremes of grief and joy seems to be the same. This principle is one of the chief stock in trade of the sensational story writers and dramatists, who usually use it for the purposes of a climax.

Sudden deaths from obstruction to the larynx are relatively common, and are easily recognized and explained. In my limited experience I have seen two cases, where drunken men were choked by a piece of meat being drawn into the larynx while eating, perhaps by a hiccough. Contrary to the usual conception of the disease it is possible to have a latent acute or chronic pneumonia, which is not revealed by symptoms during life and discovered only by autopsy after a sudden death.

We have probably all of us had our bitter experience in being hurriedly called to a person literally drowned in his own blood, as sometimes occurs in phthisis from severe hemorrhage from the lungs. I know of no more harrowing experience. It has been my misfortune to have seen four of such cases.

The most common cause of sudden deaths due to the respiratory system, is pleurisy with effusion. This has been explained in various ways, but none of them satisfactory. The danger oftenest occurs at the time or following paracentesis. This fact has led many physicians and surgeons to refrain from drawing off all the fluid in the pleural cavity. Some of these cases are due to pulmonary embolism, and others to pulmonary edema, due to a rapid engorgement of the lung from a sudden relief of pressure. Sudden deaths due to lesions of the stomach, duodenum and intestines, are usually due to perforating ulcers. The simple round ulcer of the stomach is a frequent cause of death. It may give but little if any evidence of its presence, till it perforates and sets up an intense peritonitis which makes short work of its victim.

The same is true of a perforating ulcer of the duodenum.

I autopsied a case, a short time ago, in a neighboring town, of a man fifty years old, who had only slight symptoms referable to his stomach, which were regarded as those of indigestion. He worked regularly, and went to work on the morning he was taken sick, but soon returned home, because of severe pain, apparently in stomach and bowels, which persisted till he died about twenty hours later. The symptoms were not considered serious till near the end, and were not clear as to origin. I found a perforating ulcer near the lower portion of the duodenum, with contents into the peritoneal cavity, setting up a peritonitis.

with no fever. The perforations of the intestines are frequent, and are due to cancer, tuberculosis, dysentery and typhoid fever. I have operated upon one case of perforation in typhoid fever with a fatal result. I saw another case, where the symptoms of perforation were confused by a miscarrage taking place at the same time.

I autopsied another case, where one of our nurses who had had an appendectomy done a few weeks before, and had apparently done well, suddenly developed severe pain in bowels with distention and vomiting, but no fever. A diagnosis was not agreed upon by those who saw her. The autopsy showed several perforating ulcers of the small intestine near the secum, the nature of which was not clear.

Deaths from accidents and diseases referable to the liver, spleen and pancreas are not very common.

A ruptured liver from violence is a not uncommon accident and usually ends in sudden death. I have had one such case. A ruptured gall bladder, from ulceration from gallstones, is another common method of passing on.

Cirrhosis of the liver sometimes gives a hemorrhage from the stomach that may prove suddenly fatal. Hydatid cysts of the liver may also burst, and cause sudden death by setting up an acute peritonitis.

As regards the spleen, it may be said, that in those countries where malaria is common, it becomes very hard and fragile, and is often ruptured. I cannot find that that is true in this country. Sir J. Y. Simpson records three fatal cases of rupture of the spleen during pregnancy, parturition and the puerperal state respectively.

Dr. Whitney, of Boston, has also recorded a case where a pregnant woman ate a hearty supper, apparently well, and had severe pain in the night following, resulting in convulsion and death. It was supposed the convulsions were eclampsic, till an autopsy showed a rupture of the spleen, with a discharge of four or five pints of dark fluid blood into the peritoneal cavity.

Sudden deaths occur sometimes from diseases of the pancreas, especially from what has been lately recognized as a condition of fatty necrosis. We have lately had an interesting case of this condition in our Framingham Hospital, where life was apparently saved by a prompt, severe and radical operation. The case now seems perfectly well.

I have not time to touch even upon deaths due to rare diseases with us, as the plague, or the common ones of diabetes, gout, acute rheumatism, anthrax and diphtheria. I presume we have all unfortunately seen our patients die suddenly and unexpectedly in diphtheria. These cases are, without doubt, due to a myocarditis.

You will be interested, if not comforted, by the fact that repeated cases are on record, where women have died suddenly from a simple vaginal examination in a doctor's office, whether because of it or not I can't say, but this seems to be especially true of those having fibroma of the uterus; of course it is to be expected and is easily understood why there should be sudden death in cases of extra-uterine pregnancy.

I have no doubt that many of these cases are unrecognized, though the symptoms are marked enough to make a mistaken diagnosis unnecessary. Gallard says hematoceles are ruptured fetal cysts, while Virchow says they are from another source.

When we come to sudden deaths from the kidneys, we are on fertile ground. Allow me to digress sufficiently to say that my knowledge of my own practice and that of other practitioners leads me to believe that we are wofully ignorant of the important part our kidneys play or work in the processes of health and disease.

They are the great emunctories of toxins and waste products of digestion and elimination. Death naturally supervenes when the poisons manufactured in the system, and by indigestible food are thrown off because of diseased kidneys, and we have therefore auto-intoxication. Too often our fears are allayed by finding no albumin in the urine and the false conclusion reached that therefore the kidneys are all right, forgetting that we can have uremia without albumin, and albumin present in what otherwise appear to be perfectly healthy subjects.

When the kidneys become irritated or congested they fail to eliminate. The intimate relation between kidney and heart disease need only to be mentioned to be remembered. Still another and a more common source of sudden death is alcoholism.

This operates in three ways. First is the case where a person dies the first time he gets the so-called dead drunk.

The principal cause of death in these cases is the cooling down of the body; some cases in hospitals have shown a temperature as low as 75.2 F. This is the result of the paralysis of the vasomotor system, allowing an excess of radiation of heat.

Brouardel tells of an interesting method in France in olden times, effective and scientific if not elegant, of treating these cases. They put the drunken man on a manure heap, and then covered him up. The manure being warm prevented his cooling down to the danger point. Another method that has been demonstrated by which the body is cooled, is that the blood of a drunken man lacks in oxygen and so combustion, regular respiration and production of heat are interfered with.

The second cause of sudden deaths in alcoholism is from delirium tremens, where the person dies from exhaustion.

Chronic alcoholism is the most frequent cause of sudden death. In my work as medical examiner, alcoholism, directly or indirectly, has caused more sudden deaths than any other two or three things combined. It allows many acute conditions to run a latent course, and will cause acute lesions in organs of the body, which may result in death.

Dr. French, superintendent of the Medfield asylum, once told me, that twenty-five years' experience had taught him that alcohol was the most certain and constant poison that he knew of.

I want to emphasize another point, and that is our responsibility as physicians to see that an alcoholic, who becomes abnormally suspicious and begins to have hallucinations of sight and hearing, ought to be cared for.

If he is not a fit subject for a sudden death himself he is liable to cause some other more valuable person to be.

I think it is unfortunate that a crime is so frequently excused on the plea that a criminal is not responsible because drunk.

He certainly is responsible for the preliminary steps leading to that condition, and so should be held responsible for his crime.

Sudden deaths among children are very frequent. In London, in 1854, West states that out of 627 cases dealt with by the police, 272 of them were of children under the age of five, and 126 of these were under the age of one year.

The principal causes of sudden deaths in children are syncope, convulsions, asphyxia, pulmonary congestion and intestinal troubles.

Fatal syncope is not common, but I presume we have all had our sad experience with convulsions. It is never safe to assure a family there is no danger in convulsions, for they are always dangerous. The vitality of the child is low, and requires but little inhibitory influence to kill it. The so-called " inward convulsions " of the laity and old-time nurse refer to a spasm of the glottis which sometimes even kills in the adult.

That pulmonary congestion should prove quickly fatal in children is easily understood when we remember the size of the little bronchi and bronchioles and how easy it is for them to fill and shut off all air.

From what I have thought and written out, I have come to the following conclusions:

First. — That we cannot say absolutely when the exact time of death occurs.

Second. — That there is such a thing as apparent death.

Third. — That there is a possibility, remote though it may be, of a person being buried alive, that has not been embalmed, or seen by a medical inspector.

Fourth. — That it is the duty of every doctor to inspect every case reported as dead and satisfy himself of the fact by careful examination.

Fifth. — That it would be in the interest of science and humanity, that no body should ever be buried without a medical examination.

Sixth. — That every case of sudden death, as well as those of violence, should be reported to the medical examiners in this state.

Seventh. — That we should use our influence as physicians to educate the public to a greater willingness to allow more autopsies.

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Gift to Philadelphia College of Physicians.— It was announced at a recent meeting of the Philadelphia County Medical Society that Andrew Carnegie has promised to give the College of Physicians of Philadelphia the sum of $50,000 contingent on the college raising $100,000. The money is intended for the erection of a new building for the society.— *Medical Record.*

CRIMINAL ABORTION. PERFORATION OF THE UTERUS WITH PASSAGE OF THE FETUS INTO THE ABDOMINAL CAVITY, AND PROLAPSE OF THE INTESTINE. DEATH. DISMEMBERMENT.*

BY FRANCIS A. HARRIS, M.D.,
Medical Examiner, Northern District Suffolk County,
AND
WILLIAM F. WHITNEY, M.D.

Late in the afternoon of Sept. 21, 1905, a suit case was discovered floating in the water off the house of the Winthrop Yacht Club, Boston Harbor. It was found to contain the torso of a woman, wrapped in white oil cloth. At the autopsy made the following morning, Sept. 22, three problems confronted the examiner: first to establish the identity of the individual; second the time of death; and lastly its cause.

For the first the clews were very meager. The texture of the skin and general contour of the body pointed to a woman between eighteen and twenty-five years of age. A later careful examination of the ossification by Prof. Thomas Dwight showed her to be very close to twenty years (her exact age was twenty-one). The little axillary hair that remained was of a light brown (the pubes had been shaved) and this together with the fair color of the skin classed her as a blond rather than a brunette. Her height was estimated at about five feet four or five inches. Professor Dwight's computation fixed it at five feet four and one-half inches, which was practically accurate. This was all that there was to aid the authorities in their search.

As to the time of death, any aid to fixing it from the rigor mortis was wanting from the absence of the limbs and head. All that remained to judge from was the appearance of the cut muscles where they had been severed. From their freshness it was estimated that it was only about twenty-four hours since they had been cut, and as decomposition elsewhere was but little advanced, that the death had not long preceded this.

In reality the time was considerably longer, being fifty-eight hours after dismemberment, which was done from twelve to fourteen hours post-mortem. The suit case was in the water about forty-two hours before its discovery. The protection afforded by the valise and the wrapper had prevented the action of the water, and together with the drainage away of the blood accounted for the good state of preservation and fresh look.

The cause of death was very evident, and the story of what preceded it seemed fairly clear.

The external examination showed that the limbs had been disarticulated with but little hacking, and the neck cleanly cut through between the sixth and seventh vertebræ. It was evident that whoever had done this must have had an anatomical training, or considerable practice. Another incision, evidently post-mortem, extended from the ensiform cartilage to the pubes; and still another shorter one at right angles to it about midway in the upper half of the abdominal wall. A little to the right of the former was a surgical wound reaching from midway below the umbilicus to the pubes. The upper part was closed by sutures and the lower part was continuous with the post mortem cut. The wound did not show any evidence of union, and a probe passed without the slightest difficulty between the edges, nor was there any reaction visible about the stitches.

The breasts were enlarged, the areolæ were conspicuous from their dark color, and colostrum could be squeezed from the nipples.

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* Read before the Mass. Medico Legal Society, June 12, 1906.

The internal examination showed that the stomach and intestines, with the exception of the rectum for a short distance above the anus, had been removed. The heart and lungs, liver, spleen and kidneys were intact and normal.

The uterus was enlarged to about the size of the third or fourth month of pregnancy, was empty and contracted. In the anterior wall just above the cervix was a transverse rent passing completely through it about one and one-half inches in length. Its edges were sloughing, but were united partly by sutures, some of which were loose in the necrotic material. On the inner surface of the fundus was a slightly elevated superficially gangrenous area like a placental site. Subsequent microscopic examination showed blood sinuses, recently thrombosed, and a tissue with decidual cells. What remained of the peritoneum presented the evidences of a recent peritonitis. In the pelvis, about the uterus, were packed a couple of gauze sponges soaked with pus.

From the above it was inferred that a criminal abortian had been procured, and at that time or later the uterus had been perforated, and a peritonitis had set in. Subsequently, a laparotomy had been performed, but death had followed very shortly afterward, the body had been dismembered and thrown into the water to conceal the crime.

This was not quite in accordance with the actual facts, and the reason for the discrepancy will be discussed later.

On Oct. 27, the limbs were found floating in another suit case in a different part of the harbor from where the first one was, and from the rings left upon the fingers the identity of the person was speedily established.

This was followed by the arrest of two men, who confessed that they had thrown the different parts of the body overboard. They located the place where the head was dropped, and it was recovered on Nov. 5. They pleaded guilty and were sentenced to seven years in the state prison.

Their story also implicated two physicians, one of whom was arrested and stood trial but was acquitted. The other was accepted as a witness by the government.

The history of the case as brought out during the trial showed that the deceased was exposed during the third week in April, 1905. On Sept. 9, she had an abortion procured and was afterward sent to a private hospital. As the fetus did not come away she was curetted four days later, on the afternoon of Sept. 13. This, however, failed to achieve the desired result. The operator left, intending to return and complete the operation on the following morning. But either at that time by the curette, or later during the night from the sharp bones of the more or less mutilated fetus, the wall of the uterus was perforated and the fetus expelled through the rent into the abdominal cavity. The next morning a coil of intestine, stripped from its mesentery, was found projecting from the vagina.

A laparotomy was performed, the fetus removed, the necrotic piece of intestine resected and an end-to-end suture made. The tear in the uterus was sewed up and the abdominal wound partly closed, the lower part being left open for drainage of the peritoneal cavity.

The patient seemed to do well for three days, but suddenly collapsed and died early on the morning of the fourth day, Sept. 19. That same afternoon the limbs and head were cut off; the intestines removed and burned up. The arms and legs were packed together in one large suit case, the trunk of the body in another, and the head in a leather travelling bag with about fourteen pounds of shot. During the evening these were cast into the harbor from a ferry boat.

Aside from the sensational and popular interest which such a case arouses, there are several points which should be dwelt upon as interesting in their medico-legal aspects.

In the first place, the careful envelopment of the trunk and its submersion in cold water kept the cut ends of the muscles in such a fresh condition that a mistake was made in fixing the time of dismemberment too shortly before the discovery.

In the second place, in estimating the time of death after the laparotomy there were apparently several conflicting factors which gave rise to error in this regard.

The surgical wound in the abdominal wall had not the slightest evidence of union, nor was there any sloughing of the edges or reaction about the stitches. This seemed to point to its having been made just before death. On the other hand there was a very slight growth of hair over the shaved pubes, but it was suggested the shaving might have been done at the time of the abortion and not of the laparotomy. Then too why a surgeon should suture a gangrenous uterus without at least cutting away the slough was incomprehensible. But the apparently fresh abdominal wound seemed to outweigh these objections. It is possible that the action of the water may have dissolved any union and soaked out the blood so as to make the wound appear fresher than it was. A surgeon of large experience has also stated, in discussing this case, that he has seen just such a condition of a wound even after four days. At any rate, in fixing dates such a possibility must be borne in mind.

The mistake in regard to her general type was due to the fact that there was only a little axillary hair to judge from, and her head hair was assumed to be as light or lighter than this rather than darker.

The estimate formed of her height and age was practically correct.

In regard to the condition of the uterus, it can be stated in a general way that puncture of it is by no means a rare occurrence. But the peculiar combination of it with the passage of the fetus into the abdominal cavity, and a prolapse of the intestine into the vagina is very uncommon at this stage of pregnancy, and only two other cases have as yet been found.

The first is reported by Brouardel,[1] and is briefly as follows:

On Nov. 23, 1896, a young woman, about four months pregnant, was curetted under chloroform by a physician to procure an abortion. During the operation the uterus was perforated and a loop of intestine dragged down into the vagina. At the same time the head of the fetus, which had been separated from the rest of the body, passed into the abdominal cavity. The intestine was replaced either at once or a little later. It does not appear that it was torn from its mesentery, and had not been down long enough to have become gangrenous.

At the end of eighteen hours a laparotomy was done, the head of the fetus removed and the uterus sutured. She lived for three days and died from peritonitis.

The autopsy showed the rent in the uterus to have been in the superior, posterior part, and was closed by four sutures.

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[1] Brouardel: L'Avortement. Paris, 1901, p. 344.

The second is an unpublished case of Drs. H. E. Marion and J. C. Munro, who have kindly allowed the use of their notes, of which the following is an abstract:

A married woman about two months pregnant had an abortion procured on April 21, 1897. After it she went to her home in Brighton, three or four miles distant, having been told to return the next day for treatment, if she was all right. She became very ill during the night, and the next morning (April 22) her husband went to the address she gave to him, and requested that a physician be sent to care for her. In response to this two women came out and used instruments, causing her such pain that her cries could be heard all over the house. One remained about an hour, then returned to town saying she would send a physician at once. The other woman stayed until two o'clock. A man came about 4 o'clock in the afternoon but made no other examination than to take her pulse and temperature. He said she was all right and told her husband to send for the family physician. He was called but refused to take charge of the case under the circumstances.

The next day (April 23) the husband again went to the house where he had been the day before, but the woman whom he saw pretended to know nothing about the case or that any one from that house had visited the patient on the previous day. Finally she said she would send a physician, who arrived about three o'clock. He made an examination and requested a consultation, and as a result Dr. Marion was summoned. On reaching the house about four o'clock he found the doctor sitting in the dining-room, who told him that an abortion had been done in this case. That on examination he found something in the vagina, which on cutting away he thought was a piece of intestine. The specimen was produced and proved to be about three feet of the small intestine. At this time the pulse was 120, and the temperature 99.5°. Dr. Marion at once recognized the gravity of the case and arrangements were made to have her taken to the City Hospital where she arrived about 7 P.M. At the examination made then it was recorded that she did not look very ill, the abdomen was soft and slightly tender in the lower portion. The bladder contained concentrated urine. Hanging from the vagina was a piece of black gangrenous gut about six to eight inches long. Laparotomy was advised and at once performed by Dr. Munro. There was a brownish fluid in the abdominal cavity. In the top of the uterus was a ragged rent one inch long in which the gut was constricted and close to the uterus it was black and gangrenous. The healthy gut was clamped off on each side of the uterus, and the cut ends united. The prolapsed intestine was then pulled upward into the abdomen and cut from its mesentery close to the free edge. It measured sixteen and one-half inches. The rent in the uterus was closed. The upper two thirds of the abdominal wound were sutured, the pelvis was packed and drained. The interior of the uterus was curetted. On the next day (April 24), the patient had recovered fairly well from the operation and was apparently steadily gaining up to 3 P.M., when without warning she suddenly grew worse, became delirious and died.

The autopsy by Dr. Draper showed the cause of death to be peritonitis.

The similarity of the accident in our case with the first of these is very striking, as in both the perforation followed curetting, and the fetus, or part of it, passed into the peritoneal cavity while the intestine passed out.

In the second case it is not known when the uterus was perforated, but probably by the women on the second day. Nor is it known what became of the embryo. All that is stated is that the uterus was found empty at the time of the laparotomy, nor was anything from it found in the abdomen.

In conclusion it must be borne in mind that a spontaneous rupture of a healthy uterus is unheard of under the fourth month. Therefore when such a condition is found it can positively be stated as due to some instrumental or other violence, generally in connection with a criminal abortion.

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A CASE OF DEATH FROM THE ELECTRIC CURRENT WHILE HANDLING THE TELEPHONE AND AN ELECTRIC LIGHT FIXTURE.*

BY A. ELLIOT PAINE, M.D.,
Medical Examiner, Brockton, Mass.

On the night of Nov. 30, 1904, about half past six, I was summoned to go to the Oil Works and it was stated that Harry Masters was dead. He was superintendent of the Standard Oil Works at Brockton and Kingston.

I went to the office, and found every one had been too frightened to call me up, and did not dare to touch the telephone. The bookkeeper was in the office, and he said he did not dare to touch anything. I found Mr. Masters' body lying in the inner office on his back. The telephone was by his side; the cord to the receiver was broken and the receiver lay on the floor. To his right was an incandescent desk lamp, broken, which was suspended from the ceiling by a cord.

The bookkeeper said Mr. Masters had come in about ten minutes past six, had called up his house, told them he would not be home for a little while, and had just said good-bye and hung up the receiver when he heard a crash and saw a flash of light. He went into the room and found him lying on the floor as I found him. He was not positive whether it was the telephone or the electric lamp cord that was in Mr. Masters' hand, but in trying to disengage it he received a shock himself, throwing him against the wall. The team was sent after the inspector to have him investigate the case, and he immediately came. An officer was placed in charge, and in the morning we went up there and looked things over.

When I examined the body, I found the inside of the thumb burned, a deep burn extending to the bone on the forefinger near the knuckle, and a deep burn in the palm of the hand nearly to the bone. The telephone cord was burned off. The cord is not insulated; there is simply a light webbing over small wire. The wire was burned.

In examining the telephone, the handle which holds the receiver (nickel plated) was burned on the inside or underneath part. The supposition was that as he went to put the receiver on, his hand came in contact with this metal, and as he took hold of his lamp on the desk to move it, he received the charge from the electric light. Instantly the plugs at the central office were blown out. The expert explains at the inquest that the wire from the telephone was not powerful enough to stand the amount of electricity on it, and blew out the plugs. The inquest shows that there were 3,500 volts on the principal wire, and 1,500 would be sufficient to kill. The telephone wire simply carries electricity from batteries, amounting to about 4 volts.

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* Read before the Mass. Medico Legal Society, June 12, 1906.

In talking with the bookkeeper, he said that they had had trouble with the electric wire before; that one man who worked in the engine room, in turning on the light one night, received a severe shock, throwing him down. The electric light company were notified about the condition of the wire. They made a superficial examination and found no trouble. The only examination they made was by going along on the ground and looking up at the wires. He also said that in turning on his electric lighth e would get a severe shock, and if he put his hand near it a blue flame would come.

Of course the electric light men and the telephone men tried to throw the blame on each other. The electric light men had gone out that night and located the trouble, although they did not say anything to us.

Next day the transformer was taken down and sent to my place and locked up; but the inspector of wires informed me it was not in the transformer that the trouble lay; it was on the wires where they had crossed each other. He had had them cut out. The swaying together from the wind had burned off the insulation, and that night the whole 3,500 volts passed through the telephone wire.

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THE GROVER SHOE FACTORY DISASTER WITH REFERENCE TO IDENTIFICATION OF BURNED BODIES.*

BY A. ELLIOT PAINE, M.D.,
Medical Examiner, Brockton, Mass.

I have been requested to report my experience in the Grover Shoe Factory fire. I do not know as it will be in any way important, but it shows what duties may be thrown on a medical examiner at any time.

On the morning of March 20, 1905, within one hour after starting the factory, the boiler exploded and set the factory (a four-story wooden building, employing about 200 men and women) on fire. Within a half hour I was on the spot and then nearly the whole factory was consumed. Fifty-eight lives were lost; two died after being taken to the hospital, the others were taken from the ruins — not one having a feature for recognition, the only means of identification being parts of the clothing which were on the bodies, and a few by the teeth. One, an old friend of mine, was identified by a small piece of a handkerchief, and two keys which dropped from the body on removal. There was no doubt, as the keys unlocked his wardrobe door. About one o'clock we began recovering the bodies; and they were taken to a temporary morgue, where I examined them, and a description was taken and noted and each body numbered. What appeared remarkable to me was that while many of the men were nearly armless and legless, the sexual organs were visible, and the hair about the scrotum, and abdomen still showed plainly. I also took charge of all valuables in the ruins, and all of any value have been identified by the friends. I allowed none to visit the morgue, unless they showed they were after some friend, and then they only saw the pieces of clothing and that particular body. No woman was allowed to see any of the bodies.

The city has provided a burial lot where each body lies separately with a marker and number, as I had them, so the superintendent can tell who are males and females.

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Clinical Department.

AN OBSCURE CASE.*

BY S. F. QUIMBY, M.D.,
Medical Examiner, Gloucester, Mass.

The case I report is not a sensational one, perhaps not deserving of being called obscure.

C. W. H., of West Gloucester, married, twenty-one years old, previously in good health, a shoe cutter by occupation, employed in a Lynn factory, complained one night last May of not feeling well.

He went to his work the next morning but returned to his boarding house at 10 A.M. complaining of a bad headache.

His symptoms grew worse and at noon he decided to start for his home in Gloucester.

He did not go home but went to one of those havens of refuge called Emergency Hospitals, one of which had recently been established in Gloucester.

His history as given by the hospital authorities was that he entered at two o'clock in the afternoon complaining of intense headache and pain in his legs; said he had had a chill.

Temperature 102; diagnosed as Grippe. He was put to bed and given a compound acetanilid tablet containing 2½ gr. acetanilid. These were repeated every two hours.

His temperature rose during the evening to 103, fell to 100 and shortly before death to 96.

He made very little complaint during the night, wanted the room dark and to be let alone. His legs, or the lower joints, were hyperesthetic, any motion or handling painful. At 2 A.M. the nurse in attendance noticed a change for the worse, also a peculiar petechial eruption. The proprietor and assistant were hastily summoned, heart stimulants were given hypodermically without avail and at 3.30 he died.

Meantime two or three of the local doctors who would consult with the hospital physicians had been called in. They were unable to decide on diagnosis or cause of death. Poisoning, black measles, or small-pox was suggested. At 5 A.M., I was summoned and viewed the body.

I found a young, well-developed adult male.

No external marks of violence. The most striking feature on inspection was the dark petechial rash most marked on the face but extending over the entire body and limbs.

The whole skin was of a light bronze hue, with dark blue spots which around the mouth were almost livid. I never before saw a rash that exactly resembled this one. He lay flat on his back with legs extended, feet, especially the right one, strongly inverted. Arms flexed across the trunk. All the limbs and muscles were rigid. I did not notice any especial retraction of the neck. The eyes were injected and pupils dilated. There had been incontinence of urine and feces.

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* Read before the Mass. Medico-Legal Society, June 12, 1906.

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I regarded the case as probably one of cerebrospinal meningitis, but the air of mystery and talk of poisoning led the authorities to ask for an autopsy, which was made at three o'clock that afternoon.

At this time the rash and coloring had faded a little but still remained very pronounced. On incision fluid blood oozed freely from the vessels of the skin and subcutaneous fasciæ. The lungs were normal, the heart the same, both ventricles empty.

The liver was deeply congested, the kidneys normal but hyperemic. The stomach contained perhaps a pint of dark grumous fluid; there was no evidence of inflammation. The mesentery was slightly inflamed its vessels full of fluid blood. The bladder was empty; the meninges and brain were hyperemic; fluid about base of brain and cerebellum increased in amount and slightly turbid, suggesting a beginning pachymeningitis.

A specimen of the cerebral fluid was taken for further examination by a young doctor present at the autopsy, who later reported that he could not find any of the specific meningococci in the sample he investigated. No examination of the spinal cord made.

I was virtually satisfied that it was a case of cerebrospinal meningitis with a suspicion that he might have used too many headache remedies. But the hospital physicians did not share my views, perhaps afraid that it would give the hospital a bad name.

The young man, who was married three months before, carried a small insurance policy. The hospital physicians filled a certificate for the beneficiary; afterwards I gave another. The correspondence that followed with the insurance company led me to think that to some medical men at least the case was a very obscure one.

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A CASE OF DEATH FROM AIR EMBOLISM OF THE UTERINE SINUSES.*

BY FRANK HOLYOKE, M.D., HOLYOKE, MASS.

The case which I present is that of a woman, Mrs. F. C., forty-three years of age, to whom I was called on May 1, 1905, at 4 P.M.

I learned from her husband that at 1.30 P.M. she had been closeted in her bed-room with a woman who is known to have performed abortions by the injection of soap-suds through a fountain syringe, and within the womb. In the course of a few minutes he heard her cry out: "Come and help me." He rushed in to her room and before she could speak again she was dead. I found her lying on her back upon the bed, fully dressed, her clothing carefully arranged, her skirts, bedspread, etc., being water-soaked over an area three feet in diameter, and drenched to the mattress; but directly beneath the buttocks and the genitals was a light blood stain the size of a dinner plate, showing that bleeding had been very slight. Physical examination of the abdomen revealed what appeared to be about a six-months pregnancy, but on percussion over the uterus the sound was somewhat resonant, not so flat as we find over the normal, pregnant uterus. From the vagina oozed a blood-stained fluid. I ordered the body to be removed to the undertaker's warerooms, where an autopsy was performed on the following morning at ten o'clock, Dr. J. P. Shine, of Holyoke, assisting.

All organs of the body were normal except for the general, intense venous congestion everywhere, the blood being black and fluid, without a clot.

The lungs filled the pleural cavity and were deeply congested and edematous.

The heart was flaccid and empty, except that in the right ventricle was found about one ounce of black, fluid blood, filled with air bubbles.

On opening the liver, blood filled with air bubbles flowed from the cut surfaces, more especially from the left lobe.

On removing the calvarium and dura mater a large quantity of serum flowed. The brain was congested, and all veins in and upon the surface contained black fluid blood, filled with air bubbles. The large arteries were practically empty of blood.

Manipulation and percussion of the uterus, *in situ*, indicated that there was air within its cavity. The right Fallopian tube was distended with air to the size of my little finger, the fimbriated extremity of the same being adherent to the right ovary, and therefore closed. The left tube was absolutely normal and not distended with air, which was afterwards explained, on opening the uterus, by finding that the placental tissue lay over its opening.

The vaginal mucous membrane was covered with thin bloody fluid, and felt exceptionally wet. Hanging loosely from the neck of the uterus, within the vagina, was a half-dram of jelly-like, blood-stained mucus, no mucus being found within the cervix, and the extrenal os admitting the little finger.

That portion of the placenta lying near the internal os was torn, softened and partly separated from the uterine wall, showing the introduction of some hard instrument; while farther up, within the body and fundus of the uterus, the placenta was simply raised or separated (not torn) from the uterus, over about one fifth the placental area. On the left side of the uterus, and overlying the opening of the left Fallopian tube, the placenta was undisturbed. The membranes, containing a male fetus seven inches long, were unbroken and filled with clear amniotic fluid. The placenta measured five inches in diameter; the cord nine inches in length. A large air space was found between the amnion and uterine wall.

My reasons, therefore, for believing this to be a case of death from air embolism, introduced through the uterine sinuses, and not due to gas-forming bacteria, are: First, the very sudden death which occurred in a woman previously in perfect health; second, the use of a syringe containing air and water under pressure, the nozzle closely fitting the os; third, the presence of such a large quantity of air in the dilated uterus and Fallopian tube; fourth, the black *fluid* blood everywhere filling the venous system, the arteries being comparatively empty; fifth, the flaccid heart containing blood admixed with air, which was also found in other organs of the body; and sixth, the fact that no air was found in the placental tissue nor in the cord, nor in the fetus.

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The fifth lecture in the Harvey Society Course was delivered by Dr. S. J. Meltzer of New York, Dec. 15, at the New York Academy of Medicine on the subject: "The Factors of Safety in Animal Structure and Animal Economy."

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* Read before the Mass. Medico Legal Society, June 12 1906.

DEATH BY VIOLENCE. MANNER UNKNOWN.*

BY R. B. ROOT, M.D.,
Medical Examiner, Georgetown, Mass.

THIS case is one presenting some unusual features, and the exact cause and manner of death is, and doubtless will always remain, unsolved.

On the first day of March, 1894, I was called to view a body found in a brook, the brook being the outlet of Pentucket Pond in Georgetown. On arriving at the place I found the body of a man partly submerged in the water, the brook being but four feet wide and not over three feet in depth at this place — and it never freezes as the current is quite swift. My examination made at place where body was found revealed the following facts: A man six feet in height weight about 175 lbs. His ankles were tied together with his suspenders — his wrists were tied behind his back with small but strong twine. Inclosed in a white pocket handkerchief and fastened to his coat button and opposite button-hole was a stone weighing 12 lbs. I removed the body to Jackson's undertaking rooms and on the following morning made a more careful examination and autopsy. There were no marks of violence on any part of body.

He was clothed as follows: Black overcoat, dark rough goods, marked "Allen & Co., Portland, Me.," black Prince Albert coat; black diagonal pants; dark woolen stockings; white shirt with trade mark, "Patent Reinforced H. & L. B."; turned-down collar, size 15½ in.; wristbands of shirt sleeves tied through each button-hole with white string, the string being tied over a piece of cardboard.

In his pockets I found a copy of the New York *World*, date of Dec. 3, 1893; a Boston *Globe* of Dec. 21, 1893, comb, pipe, T. D. shape, made of wood.

Decomposition was well advanced. There was a pronounced depression around left little finger as if made by a ring.

It was impossible to make a fully satisfactory autopsy on account of the stage of decomposition. Height, 6 feet, weight about 200 lbs., nearly black hair, eyes probably brown, on each wrist were deep depressions where cord had been tied. On right fore-arm there were in India ink a shield, flag and cannon, the print being three and one-half inches long and three inches wide. On removing skull no fracture was found, the brain very soft and anatomical land-marks gone. Lungs, right crepitant; left, pleuritic adhesions with what appeared like a partially collapsed condition, but post-mortem changes here, as elsewhere, rendered it impossible for me to judge as to the condition at time of death. Heart and pericaridum normal. The stomach, kidneys and liver I sent to Dr. E. S. Wood for chemical analysis.

Jan. 19, 1895, Dr. Wood not having made return of his analysis and no clew to identification of the body having been found, with the consent of District Attorney Moody, I countermanded my order for analysis of organs and made return of "Death by violence, manner unknown."

In reviewing this case there is one feature of marked interest: I spoke of his having his wristbands fastened with string through the buttonholes and tied over a strip of white card-board; certainly we must admit a most unusual method of securing one's wristbands, especially taking the trouble to tie over pieces of card-board when it would have been much easier simply to tie with string alone. And when, a few days after discovery of the body, a rumor came to me that a laborer who was said to resemble this body left the Gregory farm in Peabody in the autumn, some three months before my view in March, and that just before leaving the farm, Mr. Gregory's little son had fastened the man's wristbands with string and cardboard, I felt sure that if such was the case, identification must follow, and though it is not the duty of the medical examiner to act as detective, I wrote to Mr. Gregory, asking if the report was correct, and if so, requesting his son to send me a piece of cardboard, cut as nearly as he could remember as regards size and also the same kind of string used. In reply Mr. Gregory wrote me that the rumor was true and inclosed what appeared a perfect duplicate of card-board and string found at my view; this clew being followed up located this man as alive and well in Portland, Me. I think you will agree with me that it would be hard to find another man who had adopted so unusual a method of fastening his wristbands and, taken together with the time of his leaving the farm in the autumn prior to the time of finding the body in the spring following, apparently about the length of time the body had been in the water renders it altogether a remarkable coincidence. In conclusion, it seems to me, in view of the mystery attending the death of this man a verdict such as I rendered of "Death by violence — manner unknown" is perhaps as satisfactory as one more explicit, for the following reasons: Supposing the autopsy had revealed the death to have been from natural causes, why should he be found tied in the manner described in my report? Again, had I found the cause of death to have been one of violence, say a bullet wound, the question immediately arises, why take the trouble to tie a dead man hand and foot; and so the same question would arise had an analysis resulted in finding poison to have been present. My opinion is, that when his ankles were fastened with his suspenders, he was, if alive, in such a condition as not to be able to resist as, on attempting to lift the body into a wagon, I attempted to lift by the suspenders but they parted, though I did not exert a strain of more than twenty-five pounds, and it seems to me that had he been conscious of the attempt to tie him he could have easily freed himself.

Medical Progress.

RECENT PROGRESS IN DIABETES.

BY ELLIOTT P. JOSLIN, M.D., AND HARRY W. GOODALL, M.D., BOSTON.

(Continued from No. 24, p. 715.)

SUGAR AND DI-ACETIC ACID IN CEREBROSPINAL FLUID OF DIABETICS.

FOSTER [44] has found between 0.5% and 3% of sugar in the cerebrospinal fluid of twelve diabetic patients, but as yet offers no conclusion therefrom. Grüberger [45] mentions the presence of di-acetic acid in the cerebrospinal fluid of a severe diabetic patient, and this is of importance because of the elective power of the cerebrospinal fluid as compared with blood.

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* Read before the Mass. Medico Legal Society, June 12, 1906.

ADRENALIN GLYCOSURIA.

Underhill and Closson [46] in a series of careful experiments, obtain no evidence that the percentage composition of nitrogen in the urine, in the forms of ammonia N, urea N and creatine N, is altered by the subcutaneous injection of adrenalin in dogs. They call attention to the apparent discrepancies with Paton's results, and point out the errors in Paton's figures.

The ability of the organism to utilize dextrose, given subcutaneously, is not seriously impaired in adrenalin glycosuria. They agree with other investigators that repeated doses of adrenalin fail to produce glycosuria owing to the tolerance acquired. In the opinion of the writers adrenalin acts directly upon the nervous elements, probably through the sympathetic system, as in no other way is it likely that such small quantities of adrenalin would have such pronounced effects. This activity is probably directed upon the sugar-storing organs, causing them to give up their supply of dextrose-producing substances or preventing the storage of glycogen or both with a resulting hyperglycemia and glycosuria. As to the nature of the glycosuria produced, the writers conclude that this drug is improperly placed in the same class with such glycosuria-producing substances as carbon monoxide, morphine, strychnine, etc., as the reducing body after the administration of adrenalin is dextrose, as a true hyperglycemia occurs and the intensity of the glycosuria is, to a certain extent, dependent upon the amount of carbohydrate in the body.

It is not established that the pancreas plays a part in the production of glycosuria. Adrenalin glycosuria bears no relation to the ordinary diabetes in man.

A. Baron [47] states that extracts from the suprarenal glands of animals which have been previously injected with suprarenal extract lose the power of producing glycosuria. He further finds that extracts from the cortical substances of the suprarenal gland cause glycosuria, while extracts from the medullary substance, even in small doses, cause rapid death. Extracts of the gland are inactive if given by the mouth. Injections of defibrinated blood of such animals in whom injections have already been made are likewise inactive.

Barker [48] reports a case of bronzed diabetes, and in conclusion states that he believes the diabetes to be the terminal stage of hemochromatosis, in which Hess and Zurhelle [49] agree. Two kinds of pigment are deposited in the body: (1) Hemosiderin in the epithelial cells of the liver, pancreas and other glands. (2) Hemofuscin in the smooth muscle fibers of the alimentary tract, blood vessels, genito-urinary tract, etc.

As a result of this deposition the parenchyma of the organs degenerates, the connective tissue increases and hypertrophic cirrhosis and interstitial pancreatitis develop. When a sufficient number of the islands of Langerhans are destroyed, diabetes follows. Hess and Zurhelle [49] report a case in which 7.1% of the dried weight of the liver was iron, and the fat volume of the blood was equivalent to one fifth of the total blood volume.

PIPERIDIN GLYCOSURIA.

Underhill [50] in a very thorough series of experiments with piperidin on dogs, reaches the following conclusions:

Piperidin painted upon the pancreas may produce hyperglycemia coincident with glycosuria, which does not appear at once, but is most in evidence one or two hours after application.

No constant relationship between the sugar content of the blood and its clotting time could be shown.

This hyperglycemia is not due to local irritation of the organ, as the pancreas may be subjected to a considerable degree of irritation without appreciable change in the sugar content of the blood.

The drug probably acts through the circulation rather than directly upon the gland, as applications to the spleen, removed from the abdomen without interference with its circulation, or injection directly into the circulation, produce the same results.

The possibility that the hyperglycemia is produced independently of the pancreatic mechanism is shown by similar results obtained upon the depancreatized dog. In extreme emaciation with a greatly diminished store or complete absence of glycogen the hyperglycemia is no longer produced, suggesting that the sugar content of the blood in this form of diabetes is dependent upon the glycogen content of the body.

In all these experiments with piperidin, respiratory disturbance, especially dyspnea, was observed.

Administration of oxygen after the applications of the drug prevented the increase of the sugar content of the blood.

The conclusion is reached that piperidin acts indirectly as a consequence of its influence upon the respiratory tract.

The same probably applies to nicotin, conim, pyridin, pyrrol and piperonal. Adrenalin cannot be placed in the same category.

SALT GLYCOSURIA.

Underhill and Closson [51] have investigated the mechanism of salt glycosuria, and find that when sodium chloride is injected into the vein of a rabbit, polyuria and glycosuria are produced, probably as a result of the increased permeability of the kidneys. This permeability may be decreased by injecting a mixture of sodium chloride and calcium chloride, as is shown by a temporary fall in the flow of urine, and a lessened excretion of sugar. This form of glycosuria is evidently of renal origin, because during the appearance of sugar in the urine there is hypoglycemia, and when the excretion of sugar is inhibited by the injections of sodium chloride and calcium chloride, a hyperglycemia exists, or the sugar content of the blood becomes normal. Injections of sodium chloride into the cerebral artery produce glycosuria without polyuria, but with an accompanying hyperglycemia. The increased sugar content of the blood may be referred to the dyspnea induced by the injection of sodium chloride.

EFFECT OF SALTS AND DEXTROSE ON TRANSFORMATION OF GLYCOGEN.

Neilson and Terry [52] have conducted a number of experiments on the effects of certain salts and dextrose on the rate of transformation of glycogen into dextrose. They show that by increasing the dextrose, which is a decomposition product of glycogen, the rate of this decomposition is retarded; this bears out the fact that the products of chemical reaction retard that action, and that when the blood is rich in sugar there is a decreased production of dextrose from glycogen. Calcium chloride has a retarding action and sodium citrate an accelerating action on the decomposition of glycogen, hence sodium citrate and acetate are used as therapeutic agents to increase elimination, probably by stimulating cell activity and possibly by making the cell more permeable.

GLYCOSURIA IN PREGNANCY.

Temporary glycosuria, according to Jackson and Torbert,[53] frequently exists during the later months of pregnancy and is due either to glucose or lactose.

These physiological cases go on to termination without interruption. If the amount of glucose is variable and other symptoms of diabetes exist, such as the presence of acetone and di-acetic acid, interruption of pregnancy is advised for possible benefit to the mother. Avoid anesthetics as far as possible on account of liability of sudden collapse.

ASSIMILATION OF SUGAR IN ENEMATA.

Arnheim [54] found that after an enema of solutions of sugar, the sugar in the urine was not increased, but that acetonuria diminished. He excluded error from decomposition of the enemata, because only 5 gm. at most of the sugar administered in the enema could later be obtained on washing out the rectum. He explains the favorable action of rectal injections of sugar as due to the slow absorption. Bingel,[55] on the other hand, found no diminution of nitrogenous excretion after enemata of sugar. This should take place if the sugar was utilized. He further, like Orlowski,[56] found no influence from the sugar enemata upon the acidosis. He considers that while the sugar disappears to a considerable extent from the rectum, this is caused chiefly by decomposition and the action of ferments. Petitti [57] was able to prove that the different sugars, glucose, levulose, lactose and saccharose, were well absorbed from the rectum, and that little fermentation takes place provided they were introduced after a cleansing enema. However, these sugars did not appear to be better assimilated when given by the rectum than by the mouth. After all of them the sugar in the urine was increased, and in the form of glucose. Milk sugar was the best assimilated, and possibly may be of some value in treatment.

PNEUMATURIA.

Loghem [58] adds another to the few reported cases of spontaneous vesical pneumaturia in a diabetic. The patient, a man of sixty-five, found himself suddenly unable to urinate, but later in the same day this was followed by repeated passages of small portions of urine, accompanied by great pain and tendency to defecation. Hematuria later appeared, and on entrance to the hospital 1,200 cc. were removed by the catheter. Rectal examination disclosed a moderate enlargement of the prostate, and a hard irregular place in the posterior bladder wall. The patient was daily catheterized, and the bladder washed with a solution of salicylic acid and later silver nitrate. Four days after the beginning of catheterization foamy urine spurted out of the instrument as soon as this reached the bladder. Pneumaturia did not subside until the end of the week. Examination of the urine showed it to be acid, specific gravity 1,026, odor of volatile fatty acids, much albumin, sugar varying from 2.5% to 0.2%. Acetone and di-acetic acid absent. Trace of alcohol present. Sediment showed abundant red and white blood corpuscles, no yeast. The analysis of the gas on the 8th of November, showed the quantity 360 cm., of which one half consisted of carbonic acid, and the remainder burned with a blue flame. Two weeks after the entrance to the hospital fever developed with the appearance of a local catarrhal pneumonia, which terminated fatally.

The bacteriological examination of the urine showed two organisms, a coccus and a bacillus, which were isolated and grew as well in anaërobic as aërobic cultures. The coccus showed no gas-forming qualities. The bacillus corresponded with protens vulgaris, which has never before been described as the cause of pneumaturia. Of the thirteen cases of pneumaturia hitherto reported, nearly all have been caused by yeast. One case was due to the bacillus lactis erogenes, and the other to the bacillus coli communis. Nine of the thirteen cases occurred in diabetic patients.

EPISTAXIS IN DIABETES.

Gaul and Armand [59] studied 104 cases of epistaxis. Thirteen of this number occurred in diabetes, a larger proportion they believe than could occur by accident. These cases presented no special symptomatic character which would permit one to make a causal diagnosis. Frequent nasal hemorrhages, however, should always lead one to examine the urine, especially if such other signs of diabetes exist, as hyperemic pharangitis, hemorrhagic laryngitis, polydipsia and polyuria.

LIME DEPOSITS ABOUT TEETH.

H. Prinz,[60] in discussing the oral manifestations of diabetes, states that the oral fluids have a distinct acid reaction, but do not contain sugar. The increased sensitiveness about the neck of the teeth is largely due to the diabetic acidosis, which causes the circular ligament to swell and loosen its hold on the teeth. This loosening of the teeth and the lowered resistance of the diabetic makes the individual more susceptible to oral infection with the resulting pyorrhoea alveolaris.

The saturation of the body with acid demands increased neutralization by the alkaline earths of the tissue, which are largely held in solution by carbonic acid, and are poured out by the saliva. The carbonic acid is liberated in the mouth and the precipitated lime salts, usually of a light yellow color and soft to touch, are very rapidly deposited about the teeth, not confined to groups of teeth but form indiscriminately all over the crowns. He considers the calcareous deposit an important diagnostic sign.

DETERMINATION OF ASSIMILATION OF SUGAR.

Blumenthal[61] has determined the point of assimilation for sugar in rabbits. He injected the sugar intravenously to offset the possibility of fermentation taking place in the administered sugar solution, either in the stomach or intestine, and to avoid any changes that might occur during absorption. If one injects the same rabbit with different quantities of sugar, that quantity can be determined which, given within ten minutes, will be borne by the animal without glycosuria. This quantity, which varies between 1.8 and 2.8 gm. per animal, is constant for the same individual, even to 0.1 of a gram. If, however, one adds within a short time by injection a quantity of sugar which previously failed to produce glycosuria, it now promptly appears. He concludes that the highest quantity which is found by experiment an animal will bear without excreting sugar represents the saturation point for that animal. Thus the saturation points for glucose and levulose are nearly the same, but for galactose, saccharose and lactose much less. In a second series of experiments he determined the quantity of sugar which injected at shorter intervals, but for considerable periods, could be borne without sugar appearing in the urine. This point he considers the utilization point of sugar. Thus a rabbit of 2.7 km., whose saturation point was between 2.6 and 2.7 gm. glucose, received after a beginning dose of 0.75 gm., .05 of a gram of glucose per minute for one and one-fourth hours without glycosuria resulting, but this did not appear when, after a beginning dose of 0.9 gm., 0.06 of a gram per minute was given every hour. He determined that the saturation point for glucose was to that of galactose as 5 is to 1, while the utilization point was as 15 to 1. When the saturation point is reached in an animal, but one continues to inject more sugar, the utilization point must be determined by the condition of the liver and muscles, and consequently a diminished assimilation point for sugar leads to the conclusion that the capability of these organs for destroying sugar or storing it up in the form as glycogen has suffered.

THE ISLANDS OF LANGERHANS IN DIABETES.

Karakascheff[62] examined the pancreas in 11 cases of severe diabetes terminating in coma, and found it in all cases more or less atrophic, with more or less fatty degeneration and atrophy of the glandular parenchyma, with increase of the intermediate tissue. Karakascheff concludes that not the islands alone, but the whole glandular parenchyma, stand in causal relation to pancreatic diabetes. The islands of Langerhans undergo only a part of those changes which accompany the diseases of glandular parenchyma, because they present greater resistance and lead to the formation of new acini, and thus have the importance of a vicarious replacement of the destroyed glandular parenchyma. These new-formed acini, however, in turn succumb to the same changes as the others.

The importance of the islands of Langerhans, therefore, lies in this, that they represent reserve organs, which, under certain circumstances, form new acini when the old are destroyed. Karakascheff further points out from an examination of the pancreas of embryos and children that the islands of Langerhans represent additional fetal precursors of the glandular parenchyma.

Helly[63] believes that the islands of Langerhans are not reserve organs but are independent, although having the same origin as the glandular parenchyma. Herxheimer[64] concludes that in all cases the origin of the islands of Langerhans can be followed from the acinous glands from the first appearance of the bright cell nests in the characteristic arrangement of the acini even to the islands, which still contain remains of the parenchymous cells and small excretory ducts. Helly does not dispute the possibility of a change in the islands into glandular tissue, but believes the reverse is more easily to be explained. Marchand concludes that the islands of Langerhans are not independent forms, but are of changeable composition and great variation, a circumstance that speaks against any specific function being ascribed to them.

Reitmann[65] has been unable to find a single instance in which the islands of Langerhans show advanced disease without an accompanying glycosuria, but Reitmann, contrary to Diamare,[66] does not believe that there is an etiological connection between them and diabetes mellitus. He feels that further advance in the knowledge of their functions must be obtained by physiological and chemical methods rather than through pathological anatomy.

PANCREATIC DIABETES.

Experimental pancreatic diabetes in dogs and diabetes in man are similar according to Brugsch,[67] except that in animals there is no acid intoxication. Absence of acid intoxication in severe diabetes in man suggests therefore a pancreatic origin, if there are also symptoms of lack of the external secretion of the pancreas. Pancreon and not a too vigorous diet are indicated in such cases.

Hirschfeld[68] has observed cases of diabetes in which attacks of colic during a period of several years preceded the first outbreak of symptoms. In these individuals there is diminished absorption of meat and fat and evidently there is disease of the pancreas. The prognosis may not be immediately bad, but after each attack of colic the carbohydrates are less well assimilated.

SURGERY AND DIABETES

The dangers attending surgical interference in diabetes have gradually decreased with our improved knowledge of the disease. These dangers are primarily wound infection and coma. Diabetic wounds, however, may heal satisfactorily if they are kept antiseptic, but it is true that this is more difficult than in ordinary patients, because sugar in the blood favors the growth of organisms. It should therefore be the rule to get the patient sugar free. This is not always unattended by danger, since it is well-known that sudden changes of diet may lead to the onset of acid intoxication terminating in coma. It is safer for the patient to be in good physical condition with considerable sugar, than in poor condition with moderate quantity of sugar. Success in the surgical treatment of diabetic patients lies in so planning the diet that the sugar gradually decreases and the strength improves.

PREVENTION OF COMA.

The most threatening danger to diabetics after operation has been diabetic coma, but the presence of acetone and di-acetic acid before operation by no means contra-indicates surgical interference. Karewski[69] has operated successfully upon 3 cases of cancer of the breast, 3 cases of gangrene, and 5 cases of carbuncle in the presence of these bodies.

Körner[70] reports 33 chronic cases and 2 cases of acute mastoid disease in diabetics; and Smith[71] 2 cases of Benzold's variety of mastoid disease complicating diabetes. The operation may temporarily increase the sugar, but it does not change a mild form of diabetes into an acute type. Körner corroborates the general opinion that coma only occurs when Gehrhardt's reaction is present beforehand.

The observations of Kausch[72] and Karewski[72] upon surgery in diabetes are excellent, and may be summed up as follows:

Do not operate unless necessary. Prepare the patient for operation by gradually getting the urine sugar free, but do not sacrifice to this end the patient's strength. Avoid fasting before or after the operation. It is therefore better to operate early in the morning. Avoid unnecessary excitement. Administer alkalies (bicarbonate of soda) before the operation, giving up to an ounce, or even more, unless the urine becomes alkaline. Open the bowels beforehand, but avoid diarrhea. Karewski is guided by the case as to the kind of anesthetic, but Kausch recommends ether in preference to chloroform, and in this Neumann[73] agrees. Use as little narcotic as possible, and for as short a time as possible, and never several times in quick succession. If coma threatens, push the soda treatment with all energy, giving it by mouth, rectum, subcutaneously and intravenously. That it is possible to avert a beginning coma after operation for diabetic gangrene the reviewers can testify.

DIABETIC GANGRENE.

Neumann agrees with others that diabetic gangrene is not a specific form of gangrene, but simply an arteriosclerotic gangrene, made more unfavorable because of the presence of diabetes. Sixty cases out of a total of 176 cases of gangrene of the extremities at the Friedrichshain Hospital contained considerable quantities of sugar, and he believes that still other cases previously had sugar, but became sugar free on account of the advent of the gangrene. He, therefore, treats all cases of gangrene, whether sugar is present or not, with more or less anti-diabetic diet.

DIABETES AND PROSTATIC HYPERTROPHY.

Posner[74] has frequently observed the combination of diabetes with prostatic hypertrophy. If the symptoms of diabetes persist after the disappearance of the sugar, think of the prostate.

DUPUYTREN'S CONTRACTURES AND THEIR TREATMENT.

Jeschemacher[75] has seen 33 cases of Dupuytren's contractures among 213 cases of diabetes. Four cases were treated with thiosinamin or fibrolysin and excellent results were obtained in two instances. Fibrolysin is to be preferred.

(To be continued.)

Reports of Societies.

PROCEEDINGS OF THE AMERICAN PROCTOLOGIC SOCIETY.

Eighth Annual Meeting, Boston, Mass., June 5 and 6, 1906.

The president, Dr. L. H. Adler, Jr., of Philadelphia, in the chair.

In his annual address the President discussed the various phases of "Medical Specialism," arguing that the science of medicine and the public both profited by division of labor. The thing which has probably been responsible for the most of the criticism of the specialist is the lack of adequate preparation of many of those posing as such. Something more than a six weeks' post-graduate course is necessary for proper equipment. Five to ten years in the practice of general medicine as a basis, and not less than one year faithfully devoted to study of the chosen specialty should be deemed little enough.

The antagonism existing on the part of the general practitioner toward the specialist in most instances is due to the fact that the latter fails to recognize the consideration due the former as the family physician. No reference of the patient to another specialist should be made without consulting with the family physician and all constitutional treatment should be left to him.

In dealing with the patient the specialist should at all times protect the former physician, whether referred by him or not. No man is infallible. A shrug of the shoulder or an elevation of the brow is more eloquent than the spoken word.

Dr. W. M. Beach, of Pittsburg, read a paper on

CANCER OF THE RECTUM.

From his experience with some twenty cases in the past six years the author drew the following conclusions:

1. That a radical operation for cancer of the rectum is indicated (*a*) where the disease is not far advanced; (*b*) where the cancer is located in the anal region and does not involve neighboring structures.
2. Cancer of the movable rectum should be classed as inoperable as far as results are concerned.
3. In cancer high up, colostomy offers the best results.
4. Complications by metastasis and mechanical obstruction indicate colostomy.

Dr. George B. Evans, of Dayton, presented a paper entitled

TWO CASES OF CARCINOMA OF THE RECTUM WITH DEDUCTIONS.

A proposed operation for cancer of the rectum has for its object, *first*, a low operative mortality; *second*, a high percentage of ultimate cures based upon the three-year rule; *third*, leaving our patient in as comfortable and presentable condition as possible.

These results depend upon early operation, complete isolation of the organ affected and removal of all lymph nodes and vessels through which growth passes.

The patient should be made fully aware of the character, gravity and possible result of operation.

Inguinal colotomy can only promise partial relief from physical pain, and does not relieve mental anxiety. In colotomy we have only a palliative procedure, with little danger attached; while in extirpation with either method we have radical operation, which offers almost absolute freedom from pain, together with a more or less well grounded hope of permanent recovery.

The technique is about the same as all authors employ, with this exception, *viz.*, I transplant the levator-ani muscles and neighboring fascia to the bowel after the disease has been removed and before the bowel has been stitched to the anus; and I insert my drainage fan-shaped, posteriorly to the bowel and in front of the coccyx. The transplantation produces a constriction and a so-called third sphincter. The drainage so placed allows a better union possible at the anus.

This technique I have followed in five cases, and in each case my patient has been able to control the bowels and keep clean and neat without the use of a napkin.

By virtue of the circular fibers of the bowel and the extensive denudation following the above technique, by the transplantation of the levators and neighboring fascia, we obtain the third sphincter, so-called, and thereby control the action of the bowels.

THE OPERATIVE TREATMENT OF CANCER OF THE RECTUM

was the title of a paper by Dr. J. Coles Brick, of Philadelphia. After briefly describing the lymphatic circulation of the anus and rectum, the author expressed a decided preference for the abdomino-perineal method of operation and gave the technique of the method as devised by Quenu and modified by Mayo as being the nearest ideal.

In conclusion, two points were emphasized:

1. " In view of the large percentage of returns of the growth after removal by the best operators, the first thing to do is to educate the general practitioner to the importance and method of making a rectal examination for the earliest symptoms."

2. " The anastomatic circulation of the lymphatics at the anal margin with the sacral glands shows that all attempts at preservation of the sphincters are futile, except in very rare cases, and the lymphatic vessels and glands in all cases should be removed as far as the promontory of the sacrum."

Dr. Louis J. Krouse, of Cincinnati, read a paper on

INCONTINENCE OF FECES FOLLOWING OPERATION FOR FISTULA IN ANO,

in which, after reviewing the numerous theories on the subject, he expressed the opinion that this accident is due to the action of the levator-ani muscles on the cut ends of the sphincter. In order to prevent such occurrence he suggests that the internal sphincter should never be divided in its entirety, or if this is absolutely necessary that it should either be closed by sutures, or, better, the action of the levator should be counteracted by incising it on each side of the primary incision.

THE ATAXIC RECTUM

was the title of a paper by Dr. C. F. Martin, of Philadelphia.

Among the early rectal symptoms of locomotor ataxia are extreme constipation, rectal crises, lessened myotatic irritability of the anal sphincters and disturbances in sensation of the anal skin of the rectal mucosa. At times there is a more or less loss of the voluntary control of the bowels.

When the finger was introduced into the ataxic rectum and firm pressure was made upon the sphincters in the lateral direction, the anus could be made to relax, permitting a view into the lower rectum without the aid of a speculum. This was due to the loss of voluntary contraction of the external sphincter. In a few of the cases, after dilating the muscle, the anus remained patulous for several seconds, apparently caused by the loss of muscle sense. Anesthesia of the anal margin and of the lower rectal mucosa was marked.

Persistent constipation was a marked symptom, but one case showed a tendency to having periodic evacuations.

Rectal crises were observed in four cases. The pain did not appear to hold any relation to the condition of the rectum, whether the rectum was full or empty, or whether before or after stool, and the expulsion of flatus did not bring any relief.

Subjectively, some of the patients complained of a feeling of fullness in the rectum, as if the bowels needed to be emptied. Attempts at stool gave no relief and no lesions were found in the rectum. No feces were present.

In the more advanced cases we may expect the constipation to be replaced or associated with periodic evacuation.

Loss of sensation of the anal margin causes staining of the perineal region from the leakage of feces and mucus from the anus. Where spasm of the internal sphincter exists, associated with a sensory paralysis of the external muscle, the anus may appear funnel-shaped, simulating that condition supposed to be due to the practice of passive pederasty. There may also be present a prolapsed condition of the anal skin and mucosa and, in addition to this, there may be some hypertrophy of the anal margin.

The treatment of ataxic constipation is unsatisfactory, but some results may be obtained by training the patient to make regular attempts at stool. Abdominal massage may be tried and regular doses of the mild saline laxatives will help some of the cases. A one-sixteenth of a grain of the extract of physostigma, given three times daily, will be found a valuable addition to the saline laxative.

Attention should be paid to the bladder symptoms, as urinary retention and vesical paralysis are among the early complications of this disease.

TECHNIQUE OF LOCAL ANESTHESIA IN RECTAL SURGERY

was discussed by Dr. J. P. Tuttle, of New York. Local and general anesthesia in a state of evolution; perfection not yet attained in either. Pressure anesthesia, anesthesia frigida, anesthesia of edema, anesthesia dolorosa, known many years and from the basic principles of Schleich, Dawbarn and Gant methods.

The discovery of cocaine and similar preparations has increased the field of local anesthesia, especially in rectal diseases. All major rectal operations can be done better under general than under local anesthesia, but most of the minor conditions can be treated satisfactorily with local anesthesia. The paper gives the technique communicated to the society in May, 1905. This technique is that employed for the first time in May, 1903, and since used in upwards of four hundred cases. It consists of anesthetizing the lesser sphincterian nerve of Morestin and the inferior hemorrhoidal nerve, by a single puncture of the hypodermic needle back of the posterior anal commissure, and the introduction of from 20 to 30 minims of $\frac{1}{2}\%$ eucaine or cocaine, so that the sphincter can be thoroughly stretched. After this is done the hemorrhoids, or other conditions upon which operation is proposed, are anesthetized by the local injection of small quantities of 1-10% solutions of eucaine, cocaine, stovaine, or novocaine. Sometimes it is necessary in very sensitive patients to anesthetize the branch of the pudic nerve which supplies the sphincter at the anterior commissure by the introduction of small quantities of the solution at this point.

The operation is based upon an exhaustive study of the nerve supply of the rectum, and its efficiency corroborated by many physicians who have employed it, after having seen it demonstrated at Dr. Tuttle's clinic during the past three years. The technique enables one by a single puncture of the hypodermic needle to stretch the sphincter sufficiently for all practical purposes, and under perfectly safe doses of such drugs as cocaine, eucaine, etc.

The next paper was read by Dr. T. C. Hill, of Boston, on

PRURITUS ANI.

He discussed the etiology under five heads:

First, and most common, superficial ulceration or abrasions of the anal canal.

Second, catarrhal diseases of the rectal mucosa which cause discharge from anus.

Third, external hemorrhoids or skin tags which prevent proper cleansing of parts.

Fourth, inflammation or irritation of the small anal pockets and valves.

Fifth, small polyps of the anal canal, protruding internal hemorrhoids, prolapse, anal fissure, etc.

In addition to removing the cause, the treatment consists in restoring the altered perineal skin to normal. For this purpose nitrate of silver and citrine ointment are the best applications.

APPENDICOSTOMY AND CECOSTOMY FOR THE RELIEF OF CHRONIC DIARRHEA. REPORT OF NINE CASES

was a title of the paper by Dr. S. G. Gant, of New York.

The writer stated that the original or continuing cause of chronic diarrhea is found located in the lower bowel sufficiently often to warrant the assertion that in all these cases the sigmoid and rectum should be thoroughly examined by means of the proctoscope or sigmoidoscope.

The following are the pathologic conditions of the lower bowel which most frequently cause chronic diarrhea, carcinoma and other tumors within and without the bowel which obstruct its lumen: stricture, procidentia, invagination, polyps, fecal impaction, deviated coccyx, foreign bodies, colitis and ulceration. Of these the most common cause of the diarrhea is colitis, and the inflamed and ulcerated condition of the mucosa may be the cause of a simple inflammation of the membrane, or it may be due to trauma, gonorrhea, syphilis, tuberculosis, or amebic dysentery, the latter proving quite common in this country since our recent war with Spain.

When diet, internal medication and irrigation have failed to arrest the progress of the disease, it is time to resort to such surgical procedures as cecostomy and appendicostomy.

Nine cases of persistent ulceration, colitis and chronic diarrhea were treated by means of appendicostomy and cecostomy, there being eight appendicostomies and one cecostomy. A cure was obtained in all the cases except two within a few weeks. Of the failures, one was due to death caused by sloughing of the cecum; in the other the operation was successful, but through and through irrigation was prevented because of a stricture in the transverse colon.

The results obtained from one irrigating fluid were as good as from another when the irrigations were used daily and in sufficient quantity. Primary union was obtained in all but three cases, and the opening of the appendix during the operation to see if it was patent did not appear to add to the danger of suppuration.

In one instance the appendix was found to be strictured and Gibson's valvular cecostomy was resorted to. Only one unpleasant sequela, that of ventra lhernia, followed the above operations.

In conclusion the reader stated that the results obtained in the treatment of chronic diarrhea due to ulcerative colitis by means of appendicostomy and cecostomy have been so universally successful that he has no more hesitancy in recommending these operations for the condition named than he has for advising appendicostomy for appendicitis.

Dr. Louis J. Hirschman, of Detroit, read a paper on

AIR DILATATION IN THE TREATMENT OF CHRONIC CONSTIPATION,

in which he took the ground that this disease is most frequently due to atony of the bowel. An atonic bowel requires a stronger stimulation to produce contraction than a normal bowel, and this the author proposed to furnish by air dilatation. The apparatus he used consists of a rubber bag which is slipped over the end of a Wales bougie and distended by means of a hand bulb or compressed air. The bag is passed into the sigmoid and alternately inflated and deflated several times for about five minutes, then withdrawn in an inflated state so as to massage the entire rectum and gently distend the anus. The author's experience had proved this to be a very valuable mode of treatment.

RECTAL PATHOLOGY DUE TO EXTRA-RECTAL CAUSES. THREE RECENT CASES IN POINT

was the title of a paper by Dr. A. B. Cooke, of Nashville. The female is far more subject to disease of this kind than the male, neoplasms of the pelvic viscera, inflammatory masses and bands and the retro-displaced uterus being the causes most frequently met.

The pathology and symptoms in these cases have nothing to distinguish them. The feature of most importance is the diagnosis, not only of the rectal disease, but of the extra rectal cause which produces it. No case of rectal disease receives proper attention when the investigation is confined to the rectum alone. Occasionally removal of the extra-rectal cause will be all that is needed to effect a cure. This is always the first consideration and when not effective alone, the further treatment will depend on the nature and extent of the rectal lesion, differing in no respect from that of similar lesions due to other causes.

After reporting three illustrative cases the author concluded by again emphasizing the importance of examining the patient as well as the rectum in all cases.

The following officers were elected for the ensuing year: Dr. S. G. Gant, of New York, president; Dr. G. B. Evans, of Dayton, vice-president; Dr. A. B. Cooke, of Nashville, secretary-treasurer. Executive Council, Dr. Louis H. Adler, of Philadelphia, chairman; Dr. S. G. Gant, of New York; Dr. A. B. Cooke, of Nashville; Dr. W. M. Beach, of Pittsburg.

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Book Reviews.

Human Sexuality, a Medico-Literary Treatise on the Laws, Anomalies, and Relations of Sex, with Especial Reference to Contrary Sexual Desire. By J. Richardson Parke, ScB., Ph.G., M.D., Late *Acting* Assistant Surgeon, United States Army. Pp. 476. Philadelphia. Professional Publishing Company. 1906.

The publishers in announcing this volume make the following statement: " Both the need and the purpose of this book will be readily apparent to the intelligent reader." With this we cannot wholly agree. We question the need of another treatise on this much-worn subject, nor is it altogether evident to us for what purpose the author has seen fit to put forth another detailed discussion on a topic covered by such books as those of Krafft-Ebing, Ellis, Moll and others, although a good part of the preface is taken up with explanations as to his motive.

The book is an absolutely bald statement of the laws, superstitions and abnormal conditions underlying and associated with the sexual relations. The topics particularly discussed are as follows: Moral and social aspect of the sexual relation; sexual selection or the law of choice; betrothal, marriage, divorce; fecundation, abortion, infanticide; the law of sexual desire; inversion of the sexual impulse; perversion of the sexual impulse; artificial erotism; the sexual criminal. In elaborating these comprehensive subjects the author has delved deeply into the sexual literature and vice of all periods of the world's history, and has arranged this vast material, much of it worthless from a scientific standpoint, in a form which is sure to appeal to the morbidly curious, if not always to the serious student of the subject. This might, however, be condoned, were it not for a wholly indefensible habit, which the author frequently indulges, of regarding the subjects under discussion as a field for the exercise of his wit. This tendency is not only an example of extremely bad taste, but also goes far toward excluding the book entirely from the category of judicial discussion of a subject, which, above all others, demands dignified treatment. We fail to see wherein the usefulness of such a book can lie. Professional and scientific men will be repelled by its flippancy, and the laity is far better off without such a vivid and exaggerated presentation of sexual matters.

Students' Aids Series. Aids to Gynecology. By Alfred S. Gubb, M.D. (Paris), M.R.C.S. (Eng.), Late Resident Obstetric Physician, Westminster Hospital; Fellow of the Royal Medical and Chirurgical Society, etc. Fourth edition. Tenth thousand. Wm. Wood & Co. 1906.

Aids to Obstetrics. By Samuel Nall, B.A., M.B., D.P.H., (Cantab.), M.R.C.S. (Eng.), First Class Natural Science Honours, Cambridge School in Natural Science, St. Batholomew's Hospital; Casualty Physician and Resident Obstetric Assistant, St. Batholomew's Hospital. Sixth editon. William Wood & Co. 1906.

These are two little books of the compend class adapted by their size to be carried in a small pocket. Each has about a hundred and forty pages. The Aids to Gynecology shows better paper and better printing than the Aids to Obstetrics which gives evidence of being produced from much worn plates.

One bears the date of November, 1902, and the other of May, 1901. The Aids to Gynecology is better written and more abreast with the times than the Aids to Obstetrics. Neither presents any advantages over the American Quiz Compends except in the matter of diminutive size.

Diet and Dietetics. By A. Gauthier. Edited and translated by A. J. Rice-Oxley, M.A., M.D. Philadelphia: J. B. Lippincott Company. London: Archibald Constable & Co., Ltd. 1906.

The second edition of Gauthier's *L'Alimentation et les Régimes chez l'Homme Sain et chez les Malades* appeared in 1904, and was at once received both in and out of France, as a welcome addition to works on diet. We are glad to welcome it in its English form, and can assure the readers of the Journal that it presents an admirable exposition of the subject of dietetics from a scientific and therapeutic point of view. It is attractively written and contains much material, both new and old, which is not generally available.

The Practitioner'sV isiting List for 1907. Philadelphia and New York: Lea Brothers & Co. 1906.

This is a successor of the " Medical News " visiting list, and as such is in its twenty-first year of issue. It is a well-known and excellent pocket-sized book for the physician's accounts and memoranda, and as usual has been revised and brought up to date in the pages devoted to the usual matters of reference in daily practice.

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HOSPITALS CONNECTED WITH MEDICAL SCHOOLS.

Under the above title Dr. D. B. St. John Roosa writes in a recent number of the *Medical Record*, combating the popular notion that in hospitals connected with medical schools the interests of the student-body rather than those of the indigent sick receive the first consideration. It is pointed out that in Germany, France and Austria, where all the hospitals are teaching hospitals and where all the hospitals are taken care of by the municipality or the general government, there is no predominance of the commercial spirit in the medical profession. In these countries, to be sure, the teacher looks to the state for a certain share of his remuneration. On this side of the water the government does nothing towards the payment of the visiting staff of the hospitals, merely providing in some instances for the salary of a medical superintendent and his assistants. The visiting staff receives no pay whatever. It is an uncontroverted fact that the attending physicians of hospitals attached to colleges, far from making large incomes and contributing nothing towards the maintenance of the institutions, are the most truly charitable men of the profession, not only giving their services to the poor, but teaching as well the rising generation of medical students without remuneration, for the salaries paid by medical schools to their teachers are nominal rather than a fair wage. The man whose interest in the science of medicine causes him to devote a large portion of time to the medical care of the poor knows perfectly well that high appreciation of his work on the part of his fellow members of the profession, a more or less enduring fame, and a gradual increase in his private practice are what he may obtain from such work. The busy country practitioner does not always realize how much of time and energy his metropolitan brother expends in gratuitous services to the poor; the general public think hospital physicians are paid servants of the hospital.

Hospital service fosters a broadening of the humanities. Those competent to judge maintain that the patients in the medical school hospitals receive as humane treatment as those in the unattached hospitals. As Dr. Roosa says, "It is almost impossible that any continued abuse, such as maltreatment or neglect or unkindness, would be allowed to obtain in a teaching hospital, for it is under the supervision not only of the physician in charge, but also of the doctors and students of medicine who frequent its wards." Our ideas as to the treatment of patients are somewhat different from those to be found on the continent of Europe. The people of our democracy, poor and rich alike, are accustomed to receive more consideration of their minor wants at the hands of their medical attendants than the people of Berlin and Vienna. Our medical students are now picked men, having an academic education, and when, upon occasion, one unthinking boy-like disciple of Æsculapius, fired by a zeal for *die heilige Wissenschaft*, forsakes a high standard of kindness and humanity, he is promptly checked by his fellow-students or more mature instructor.

Hospitals have been maintained in connection with medical schools in Boston, New York and Philadelphia from earliest times. The state of Pennsylvania gives an annual and generous donation to each of the hospitals connected with medical schools of the city of Philadelphia. It is not known that there has been objection on the part of the medical profession of the city to such a gift. The New York Hospital, the oldest hospital in the city of New York, has always been a teaching hospital. It was subsidized by the colonial government under which it was founded, and this subsidy was maintained by the state of New York until 1856. It has been a leading philanthropic institution as well as a teaching hospital, and its visiting staff, foremost teachers of surgery and medicine, among them being Valentine Mott, Willard Parker, W. H. Van Buren, Alexander Hosack and Thomas Cock, have given regular medical instruction within its walls and have bequeathed their glory and renown there acquired to New York City. Bellevue Hospital Medical College was built on land leased to it at a moderate rental by the city, and the Woman's Hospital, while at Forty-ninth Street, in like measure was on land given to it by the municipality. In our own city the Massachusetts General Hospital, a teaching hospital, has been intimately associated with the state from its foundation in 1811, and the Boston City Hospital for the sick poor of the city, with its open clinics to the students, has been under the control of the city government from its inception.

There is no well founded reason why the union between the hospital and medical school should not be closer as time progresses. The public hospital is a part of the system of charities supported by the body politic and by private bequests; the medical school guarantees to the public that its graduates shall have had a certain amount of actual experience in the care of the sick before they are turned loose on the community. What better place for them to acquire their experience than in the wards of a hospital connected with the medical school where they are under competent supervision. The advantages to the patients are many, not the least being the careful surveillance they receive because of the needs of teaching. Slipshod diagnoses made by a hurried practitioner give place to carefully prepared analyses of every case. Each point in diagnosis and treatment is questioned by many men, thus leading to painstaking thoroughness. Another benefit to the patient is having at hand completely fitted laboratories and a trained corps of scientific workers who are attracted only to medical schools, for the working out of the many elaborate processes necessary in these days to the making of a diagnosis.

The benefit to the community and to the government by this association of hospital and medical school is universally recognized by the medical profession as attested by the fact that they intrust their patients to the teaching hospitals with every confidence that they will receive there not only the most skilful treatment, but humane care as well. As the lay public becomes increasingly familiar with matters medical, we hope to see mastered the true conditions underlying the relationship of the hospital to the medical school.

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SYPHILIS AND THE INNOCENCE OF WOMAN.

At a meeting of the Academy of Medicine of Paris on Oct. 2, 1906, and again on Oct. 9, 1906, the eminent Dr. Fournier showed that in his private statistics 20% of his female syphilitics were married, contaminated by their husbands, and he declares that this per cent is without any doubt smaller than in reality. In 30% of the cases the husband contracted syphilis after his marriage, while in the remaining 70% the infection was previous to marriage, and from this fact it becomes evident that the latter represents the greatest danger for virtuous women. In these cases the date of infection of the woman is very variable, but in the large majority it was inflicted during the first year of marriage, particularly in the first six months, this representing 86% of cases.

There are instances of remarkable precocity which are met with when the husband marries still bearing contagious lesions, and quite frequently the syphilis may be in the incubation period, contracted only a few days before marriage, frequently following the customary final bachelor's dinner. But there are cases of tardy congestion, arising as late as the fourth, fifth or even the eighth and ninth year of infection, and as such instances are undeniable, they necessarily must be attributed to the appearance of late secondary syphilitic lesions in the husband.

These cases have led Dr. Fournier to ask the question at what age the husband's syphilis may be at the time of marrying. Out of one hundred and forty-two cases observed, in ninety-eight the husband's syphilis was less than three years, and in forty-eight it was over this lapse of time in age. From the prophylactic standpoint, syphilitics marry altogether too early, and this is partially due to a too great indulgence on the part of many physicians, to such an extent that Fournier has had some patients who married with the permission of their physicians fifteen or even ten months after the appearance of their primary lesion.

In reality much time and a large amount of mercury is necessary in order to assure complete security for the wife and still more for the offspring. Fournier formerly required from three to four years to elapse before he gave his consent to marriage, but he now declares that this is too little and that the desirable mean should be five years. The eminent professor insists particularly on cases of tardy infection, which in his experience are far from infrequent. These instances are due to the appearance of late secondary syphilitic lesions in the husband, and among these he particularly insists upon certain erythemata and papulo-squamous eruptions, such as palmar psoriasis, etc., backing up his statements with the report of a case where the latter lesion appeared twenty-nine years after the chancre, while he especially insists on mucous syphilides of the tertiary period which are true tertiary mucous patches, or better still, tardy mucous patches, which, although appearing late in the progress of the affection, are none the less contagious. Thus, for example, Fournier has observed cases of conjugal infection seventeen and even nineteen years after the appearance of the chancre, so that Neisser was able to state at the Lisbon Congress that the age of syphilis has no importance from the standpoint of contagiousness. This statement contains a part of the truth, for from four to ten years the possibility of contagion cannot be questioned; after the lapse of ten years those cases which have been observed are as yet too few to justify unreservedly Neisser's proposition. Fournier declares that the public should be cognizant of these facts, and that it should understand the danger residing in old syphilis.

From the prophylactic standpoint Fournier insists that the syphilitic should renounce the use of tobacco which so generally produces tardy secondary syphilides, rendering the mouth a formidable agent of contamination. He ends his interesting dissertation by pointing out two elements of gravity in cases of syphilis transmitted by the husband, namely, those where the affection has been treated for an insufficient length of time, and secondly, cases of ignored syphilis, carefully dissimulated by the husband with the attending physician as an accomplice, both of which elements expose the wife to serious ulterior accidents, the nature of which will probably go unrecognized.

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THE STAGE AND MEDICINE.

BERNARD SHAW is a member of the St. Pancras Borough Council. Some of the time of this body is taken up with a consideration of the doings of medical men. What more was to be expected, then, than that Bernard, his psychism being in its normal state of hyperirritability, should spring at once a turbulent stream of speeches, articles and letters on the newspapers, all in exposition of the inhumanity and the evil propensities of the craft.

Of course he wrote a play upon these matters entitled "The Doctor's Dilemma," which was, at last advices, running in London, and which we may yet see on this side of the water. The main characters are four: A pathologist, a very bad sort, we fear, and on the whole the real villain; an artist, who is dying of consumption; a lady, the artist's wife (although as to this relation we are left in some doubt, but this is not surprising to those who know their Shaw); and a physician, a lifelong friend of the pathologist, who has unhappily contracted tuberculosis. The pathologist (this cannot be aimed at Wright, who, according to our London correspondent, page 731, is a friend of Shaw's) has discovered a vaccine against this disease, which vaccine is related in an important way to the opsonic index. But thus far it has been possible to prepare only enough material for ten cases; and these have been carefully selected and are in hospital ready for injection. The lady begs the pathologist to include among this number the artist, by reason that, although he is admittedly a very immoral man, his pictures are delighting mankind. On the other hand there pleads for admission among these ten the phthisical Æsculapian who, though highly moral, is held to be not especially useful in the world, not having painted such pictures as are so helpful and so conducive to the progress of the race.

Here lies the dilemma, which becomes further complicated when the pathologist finds that he has developed an affection for the lady who either is or imagines herself to be the artist's wife. The pathologist reaches a solution by rejecting the artist and turning him over for treatment to a fashionable practitioner whom he knows to be a wretched bungler, and by including his inconsequential colleague among the fortunate ten. The artist dies, according to expectation, in a bath chair, but before becoming comatose he begs the lady (after all, she *must* have been his wife) to marry again, because the idea of a sorrowing widow has always shocked his artistic sensibilities. Rigor mortis has scarcely set in when the pathologist reveals his heart to the widow, confessing to her in detail the iniquitous processes by which this step has been reached. She, however, indignantly refuses his offer of marriage, all the more that a gentleman as old as he should have dreamed of any such thing, and announces that she has already married again.

We might observe with Touchstone: In respect that this is a play, full of incidents amusing to the physician, it is a very good play; but in respect that it is a criticism of things medical it is a very vile play indeed. We should find an extended consideration of it quite diverting. But our readers will do this very well for themselves, and we have certainly devoted to it as much space as it deserves. Suffice it to note that Shaw, a vegetarian to start with, an extreme and most bitter opponent of vaccination and vivisection, given as he is to the breeziest imaginable disregard of commonplace facts, the prince of quacks in literature, is not the kind of man from whom we would expect sane and wholesome criticism, either in medicine or in any other field.

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STREET CARS AS BREEDERS OF DISEASE.

From the purely commercial point of view it may not be considered our province to protest against crowded and unventilated street cars. Nothing can be better calculated than this combination of conditions to foment, to foster and to multiply diseases, especially those of the respiratory organs; to increase the demand for the doctor's professional services. Hygiene and preventive medicine, however, claim our allegiance, and in their name we do protest most earnestly against the conditions which have lately prevailed in the street car service of Boston.

It is not a question of why or wherefore the entrance of fresh air has been excluded; it is simply an affirmation that an unwholesome, abhorrent, uncivilized and intolerable state of things has obtained, which lasted long enough to serve as an example of how not to do it.

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MEDICAL NOTES.

Philippine Journal of Science. — The amount of Material received for publication by the *Philippine Journal of Science* has increased to such a degree that the journal will hereafter be divided into three specialized publications; general science, medical sciences and botany. These sections will not be issued at regular monthly intervals, but will appear as fast as material is available. The rapid growth of this journal is a striking evidence of excellent scientific work.

Mrs. Osler's One Hundredth Birthday. — On Dec. 14, Mrs. Featherston Osler celebrated her one hundredth birthday in Toronto. On this occasion were collected together a large proportion of her direct descendants. Among her six children are the following distinguished men: the late B. B. Osler, Q.C., a member of the Canadian bar; Dr. William Osler, Regius Professor of Medicine at the University of Oxford; Justice Featherston Osler, of the Ontario Court of Appeals, and E. B. Osler, M.P. In addition to her six children Mrs. Osler is the grandmother of twenty-six and the great-grandmother of twenty-one. Mrs. Osler has lived during the reign of five English sovereigns, a fact commemorated by the birthday cake which graced the festivities. These are George III, George IV, William IV, Victoria and Edward VII. It is a matter of congratulation that Mrs. Osler, in spite of her one hundred years, remains well in all respects, except for a slight degree of deafness.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Dec. 19, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 57, scarlatina 36, typhoid fever 7, measles 8, tuberculosis 36, smallpox 0.

The death-rate of the reported deaths for the week ending Dec. 19, 1906, was 18.88.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Dec. 15, 1906, was 231, against 185 the corresponding week of last year, showing an increase of 46 deaths and making the death-rate for the week 20.0. Of this number 108 were males and 123 were females; 223 were white and 8 colored; 140 were born in the United States, 88 in foreign countries and 3 unknown; 46 were of American parentage, 159 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 55 cases and 1 death; scarlatina, 28 cases and 0 deaths; typhoid fever, 12 cases and 2 deaths; measles, 9 cases and 0 deaths; tuberculosis, 38 cases and 20 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 27, whooping cough 1, heart disease 32, bronchitis 7 and marasmus 0. There were 17 deaths from violent causes. The number of children who died under one year was 31; the number under five years 43. The number of persons who died over sixty years of age was 74. The deaths in public institutions were 69.

There were 2 cases and 1 death reported from cerebrospinal meningitis during the week.

Additional School Inspectors. — The Boston Board of Health has recently appointed thirty additional physicians to serve as school inspectors, making a total of eighty physicians now employed in this work. The salary paid is $200 a year.

John Homans Professorship Fund. — It is announced through Mr. Charles C. Jackson, treasurer of the John Homans Memorial Fund, that $50,000 has been received to establish the John Homans Professorship in Surgery at the

Harvard Medical School, together with an additional sum for the erection of a tablet in one of the medical school buildings.

Gifts from the Harvard Medical Alumni Association. The Harvard Medical School has received from its Alumni Association the following gifts: $1,200 to be applied to the salaries of one or more of the younger instructors and $2,430 to be held as the nucleus of a permanent fund, the income of which is to be used to raise the salary of one or more instructors, or otherwise, in accordance with the wishes of the Alumni Association.

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Current Literature.

The Journal of the American Medical Association. Dec. 1, 1906.

1. *Montgomery, E. E. *Uterine Myomata Complicating Pregnancy.*
2. *Crile, G. *Excision of Cancer of the Head and Neck.*
3. Fussell, M. H. *Dispensing Versus Prescribing.*
4. Lombard, W. P. *A Method of Recording Changes in Body Weight.*
5. *Potter, N. P., Ditman, N. E., Bradley, E. E. *The Opsonic Index in Medicine.* (Concluded.)
6. *McCaskey, G. W. *The Role of Nuclein in the Animal Economy.*
7. *Mandel, A. R., Lusk, G. *Lactic Acid in Metabolism.*
8. Kenison, P. D. *Chronic Catarrhal Deafness.*
9. Blake, C. J. *Otology in its Relation to Rhinology and Laryngology.*
10. Darnall, W. E. *Multiple Neuromata of the Skin.*
11. Claiborne, J. H. *Types of Congenital Symbol Amblyopia.*
12. *Ely, T. C. *Neurasthenia as Modified by Modern Conditions.*
13. *Pfaff, F., Nelson, E. *Effects of Aperients on the Peristalsis of the Stomach and Intestines.*
14. *Skoog, A. L. *Bromism.*
15. *Fisher, J. T. *Types of Insomnia and Treatment without Drugs.*
16. Diehl, C. L. *The National Formulary.*

1. Montgomery considers the behavior of uterine myomata in pregnancy. In a majority of cases the effect of pregnancy is to increase their rate of growth; this may be so great that the abdominal distention may necessitate operation to save life. The effect of the tumor upon the pregnancy may be *nil*, if it is situated at the fundus; the presence of a tumor, however, involves grave danger of obstructing labor or of undergoing necrotic processes after delivery. He therefore favors operation to remove the tumor by enucleation in married women. That this does not prevent subsequent successful pregnancy is proved by a case which he reports. In pregnancy complicated by myomatous growth, the symptoms which, when severe, demand interference are: Pain, pressure symptoms, positive obstruction, and signs of impending abortion. In such cases prior to the fifth month enucleation may be performed without interfering with the pregnancy. When there is no hope for continuance of the pregnancy, hysterectomy is the safest operation for the mother.

2. Crile advocates complete excision of the lymphatic system of the neck in cases of cancer of the head. Since the lymphatic system of the neck is so intimately connected with the venous, he performs a block excision of the internal jugula rvein and of all the lymphatic gland-bearing tissue in relation with it. The vein is divided close above the clavicle, dissected upward in the deep plane with the block of tissue which is finally divided above. Crile lays much stress on avoidance of handling carcinomatous tissue. The techniqe of the operation is fully described and illustrated. Among twelve traced cases operated on in this way more than three years ago, nine are now living.

5. Potter, Ditman and Bradley describe at length the development and present status of our knowledge of opsonins. The leukocytes of the blood are able to engulf bacteria by phagocytosis only in the presence of certain substances present in blood serum called *opsonins* (*opsono*, I prepare the food for). These opsonins are believed to act upon the bacteria, rendering them subject to phagocytic ingestion by leukocytes. Different sera possess different degrees of opsonic power. This power in any given serum is measured by mixing in equal parts (1) a bacterial emulsion in salt solution; (2) a mass of blood corpuscles washed free from serum; and (3) the serum to be tested. This mixture is then incubated at 37° C. for twenty minutes, after which a smear is stained and examined. The average number of bacteria per leukocyte is determined from twenty to fifty polymorphonuclear leukocytes, and this number compared with the average number found in a control mixture, made at the same time and in the same manner, using a serum known to be normal. The ratio of the average per leukocyte in the test preparation to that of the control is known as the *opsonic index*, and indicates the degree of power of the serum to induce phagocytosis of the bacteria used in the test. Wright and Douglas believe that the opsonins are specific for each kind of bacteria; this the authors do not consider certain. The changes in the opsonic index for the various bacteria, in the diseases which they cause, are not constant; all that seems shown as yet is that the index in such diseases varies both above and below the normal limits, during the illness, perhaps rising (especially in typhoid) as convalescence is established. After the injection of bacterial vaccines, such as Koch's new tuberculin, the opsonic index at first falls (the "negative phase") but soon afterward rises high above its original figure (the "positive phase"). Wright has treated cases of localized tuberculosis with striking success by small injections of new tuberculin, guided by the tuberculo-opsonic index, so as to keep the patient as much as possible in the positive phase. In diagnosis it is thought that a constantly low or a fluctuating tuberculo-opsonic index argues for the presence of tuberculosis, whereas with a constantly normal tuberculo-opsonic index, tuberculosis is probably absent.

6. McCaskey has determined the amounts of uric acid and of phosphoric acid in the urine of a large number of patients, in an attempt to measure roughly the amount of nucleins represented by these substances, which are their cleavage products. The nucleins of the body are widely distributed, but occur especially in the nuclei of the cells. They are of interest for their own properties, and as ths antecedents of the purin bodies including uric acid. The nucleins have some germicidal power; they may be active in bacteriolysis and in production of phagocytosis; the toxins of diphtheria and tetanus are precipitated by nucleinic acid. Uric acid is not toxic, causing symptoms only as a mechanical irritant when precipitated. Other less oxidized products of nuclein disintegration, of which four are known, are some of them toxic. The results of the analyses are tabulated. The excretion of uric acid (and presumably also of other purin bodies) was most strikingly increased in Bright's disease.

7. Mandel and Lusk consider that lactic acid in the body arises from a proteid, possibly through cleavage of leucin into aceton and alanin, the latter by hydrolysis forming lactic acid. Once formed, it may be converted to dextrose, then to glycogen; conversely from glycogen may be formed dextrose and then lactic acid. In diabetes, dextrose cannot be converted into lactic acid. In phosphorus poisoning or in diminished oxygen supply, lactic acid cannot be broken up and accumulates, accompanied by fatty infiltration.

12. Ely summarizes the causes of neurasthenia as, faulty hygiene; trauma; co-existent disease, functional or organic, especially latent tuberculosis, syphilis, digestive disorders or arteriosclerosis, as well as eyestrain, uterine displacement, etc., which may result in a reflex drain of nerve force; mental strain, worry and false ambitions incident to modern civilization; heredity and over-education.

13. Pfaff and Nelson have studied the action of cathar-

ties upon animals, both by direct observation of the opened abdominal cavity in a bath of saline solution, and with the x-ray. They were unable to observe the antiperistalsis of the colon. Of the drugs used, croton oil, aloes and podophyllin increased markedly the peristalsis of the whole gastro-intestinal tract. Other drugs increased peristalsis of the intestine only. They suggest that aloes and podophyllin may prove useful in atonic conditions of the stomach.

14. Skoog calls attention to the abuse of bromides in the treatment of epilepsy, causing dullness or even psychosis which may be neglected or thought to be a part of the disease.

15. According to Fisher the majority of insomnias are distinctly of mental origin and to be treated by mental or suggestive treatment.

The Lancet.

Nov. 24, 1906.

1. Andrews, F. W. *The Evolution of the Streptococci.*
2. Moore, N. *History of the Study of Clinical Medicine in the British Islands.*
3. *Wilson, T. *The Reciprocal Relations between Affections of the Uterus and Its Appendages and the Rest of the Body.*
4. *Keith, A., Miller, C. *Description of a Heart Showing Gummatous Infiltration of the Auriculo-Ventricular Bundle.*
5. Richards, W. H. *Thirty-three Consecutive Hysterectomies.*
6. Weber, F. P. *Further Note to a Case of Myelopathic or Splenomegalic Polycythemia.*
7. Macartney, D. *Two Cases of Perforated Gastric Ulcer, Successfully Operated On.*

3. Wilson points out the normal relation between the uterus and ovaries, and the rest of the body organs at puberty, pregnancy and the menopause. During pregnancy, especially, the changes in the uterus are accompanied by changes in heart, liver, kidneys, blood and often in the nervous system and the mental state. He thinks that the thyroid gland has an especial relation to the organs of generation, and that its secretion is largely to counteract the toxemias of pregnancy. He speaks of the use of thyroid extract in eclampsia. Cases showing the relation between exophthalmic goiter and the menstrual functions are cited. In osteomalacia removal of the ovaries will check the process. Hysteria, migraine and epilepsy are connected with the menstrual function, and the crises in the last two conditions often occur during the menstrual period.

4. Keith and Miller describe an interesting case of a man of forty-eight, first seen in 1897, who entered the hospital for attacks in which he would become faint, fall down and remain unconscious for a few seconds. The veins of the right leg and abdominal wall were dilated and tortuous. The pulse averaged forty-two during his stay in the hospital. As he had a specific history he was given iodides for years with some improvement. He died in 1905 of an acute appendicitis. The heart showed the following conditions at autopsy: The superior cava was completely destroyed; the coronary sinus and the sinus of the left auricle were involved in a cicatricial ring; the commencement and upper half of the auriculo-ventricular bundle were completely destroyed and the coronary arteries were partly occluded.

British Medical Journal.

Nov. 24, 1906.

1. Walker, N. *The Past of Dermatology in Edinburgh.*
2. Stockman, R. *The Action of Salicylates in Acute Rheumatism.*
3. Bradshaw, T. R. *The Recognition of Myelopathic Albumose in the Urine.*
4. Beattie, T. M. *Rheumatic Fever and Amyloid Degeneration.*
5. Doran, A. *Myomectomy during Pregnancy and Labor at Term in an Elderly Primipara.*
6. Paterson, D. R. *Congenital Laryngeal Stridor.*
7. Bronner, A. *Notes on an Unusual Case of Papilloma of the Larynx in a Child Treated by the Local Application of Formalin.*
8. Le Fevre, E. *The Treatment of Uremia.*
9. *Ross, G. W. *Opsonins and Bacterial Vaccines.*
10. *Coley, T. L. *The Action of Drugs in Vascular Hypertension.*
11. Cohen, S. S. *The Respective Spheres of Hygienic and Medicinal Measures in the Treatment of Pulmonary Tuberculosis.*
12. Stewart, F. E. *The Working Bulletin System for the Collection, Investigation and Classification of the Newer Materia Medica.*
13. Dixon, W. E. *Drug Fallacies.*
14. Cushing, A. R. *The Action of Drugs on the Uterus.*
15. *Blackader, A. D., Meltzer, S. T. *A Discussion on Alcohol as a Therapeutic Agent.*
16. Halsey, J. T., McCrae, T., Marshal, C. R., Bradbury, T. B., Wild, R. B. *A Discussion on the Teaching of Materia Medica and Pharmacology.*
17. Brower, D. R. *Therapeutics of Acute Acquired Insanities.*
18. Delsaux, V. *Subperiosteal Abscess of the Forehead, Complicated with Thrombophlebitis of the Superior Longitudinal Sinus and Jugular Vein of the Opposite Side; Meningitis; Death; Necropsy.*
19. *Hunt, N., Casselberry, W. E. *A Discussion on Laryngeal Disturbances Produced by Voice Use.*
20. Porcher, W. P. *Inflammatory Nasal Obstruction as an Etiologic Factor in the Production of Sputa.*
21. Jackson, C. *Thyrotomy and Laryngectomy for Malignant Disease of the Larynx.*
22. *Turner, A. L., Ashly, H. *A Discussion on Congenital Stridor (Larnygeal and Tracheal).*

9. After a brief consideration of the opsonic theory, Ross, A. E. Wright's assistant, takes up the treatment of bacterial infection. This must be either surgical or the application of an antibacterial substance or by the therapeutic inoculation of an appropriate bacterial vaccine. He takes up the last group only. He classifies bacterial diseases under three heads: (1) Diseases in which the process is strictly localized; (2) those in which it is but loosely shut off; (3) those in which it is in the blood stream. The general principles of treating any bacterial invasion are (1) Isolate in pure culture the causative organism; (2) estimate the opsonic power of the patient's blood to this organism; (3) if it is at or below normal prepare a vaccine from this organism; (4) inoculate the patient with proper doses and at proper intervals as shown by the opsonic content; (5) never inoculate during a negative phase. This applies to all bacterial invasions from which the organism can be cultivated. He describes cases of lupus, tuberculous bones and joints, cystitis, iritis, pulmonary tuberculosis and others in which he has seen this treatment used with marked success.

10. From a purely mechanical standpoint, arterial pressure depends on (1) the heart, especially the left ventricle; (2) the arteries; (3) the condition of the capillaries and small arterioles under the control of the vasomotor system; and, (4) the amount of blood. The last varies so little in a given case that it may be left out of consideration. In approaching the question of drug control of hypertension it is of paramount importance to recognize the underlying cause. There are three classes of drugs that can be used in lowering blood pressure: (1) The heart depressants, potassium salts, chloral, alcohol, etc.; (2) vasodilators; (3) purgatives. The writer experimented in three classes of individuals in studying the effect of drugs on blood pressure: (1) Men in normal health with average pressure; (2) those later in life, with slight hypertension, but no symptoms; (3) those with vascular hypertension, as a morbid process complicating certain diseased states. He then gives the effects of drugs from the above-mentioned groups on these three classes of subjects. He concludes that the action of drugs in health is not paralleled by their action in disease; that the prolonged use of the iodides produces no effect on cases of hypertension, and that in many cases the hypertension is physiologic and should not be interfered with.

15. The action of alcohol has long been in dispute; the majority agree that it has very little effect on the heart. It dilates peripheral vessels, but the blood pressure, at least in normal dosage, does not vary. As a result of

thorough investigation it looks as if the effect of alcohol upon the circulation was *nil*. On the nervous system its action, though complex, is supposed to be a depressing one on the higher inhibitory centers. Its depressing action on high cerebral centers is one of its greatest advantages in medicine. In moderate doses it is supposed to increase the bacteriolytic powers of the blood, while its value as a food, especially under conditions when absorption of other kinds of food is difficult, is undoubted. As a narcotic, no other can be used so freely without injurious after effects.

Meltzer thinks that facts as they are known to-day are in favor of a judicious use of alcohol; it does patients no harm and does make them more comfortable; it helps in combating infectious processes and acts as a food under circumstances when food absorption is difficult.

19. Hunt arranges his paper under the following heads: (1) Use of voice through its whole compass at definite degrees of pitch and usually for short periods of time, as in singers; the lesions are hyperemia and muscle paresis. A wrong method, especially as regards breathing is usually the cause. (2) Use of voice for long periods, but with prolonged intervals of rest,—preachers, public speakers, etc.; the lesions are chronic congestion, phonasthenia, neurotic disturbances. Here the trouble usually is that the preacher attacks his work without sufficient training. (3) Daily use of voice for many hours at a stretch, as in school-teachers; the lesions are largyneal nodules, fibromata. Here the sufferers are mostly women, and their vocal troubles are due to a constant overstrain of an organ either naturally delicate or rendered so by poor surroundings and constant abuse. (4) This last class is small, consists of actors who take old men's parts, choir masters, who sing all parts, drill sergeants, etc. Here the lesions are usually soft fibromata; their cause is obvious.

22. Turner takes up the various explanations offered for that peculiar condition known as congenital stridor, after first giving a clinical description of it. (1) Adenoid vegetations he does not consider play any part in producing stridor. (2) Compression of the trachea by an enlarged thymus. While this in a few rare cases, as proved by operation, has seemed to be the causative factor, there are so many more cases where this does not enter into the etiology, that it cannot be very seriously considered. (3) Congenital malformation of the upper aperture of the larynx. But although there was an undoubted malformation of the upper aperture of the larynx, this was found in every case by post-mortem examination, and so its congenital origin is not proved. (4) An acquired deformity of the upper aperture of the larynx, the result of a disturbance of the co-ordination of the respiratory movements. This the writer believes to be the true condition, wrongly interpreted as a congenital anomaly, and to be the real cause of stridor. He describes the larynx in the infant, and infantile respiration and the anatomical peculiarities which render the so-called congenital stridor possible.

The Practitioner.

October, 1906.

1. Donald, A., Lickley, J. D. *Abdominal Pain in Diseases of the Pelvic Organs.*
2. Howell, C. M. H. *Acute Abdominal Pain.*
3. Greene, W. H. C. *Anuria.*
4. Thomson, H. C. *Demonstrations on Diseases of the Nervous System.*
5. Fisher, T. *Recurrent Swelling of the Dorsum of the Hand Associated with the Appearance of Bruising Following a Blow.*
6. Emery, W. D. *Serumtherapy.*
7. MacDonald, D. M. *Some Clinical Features of Colica Mucosa.*
8. Day, H. B. *Dyspepsia Due to Gallstones.*
9. Hewlett, R. T. *Review of Tropical Diseases.*
10. Lane, J. E. *Review of Recent Work on Venereal Diseases.*

November, 1906.

1. Crawford, R. *Valvular Disease of the Heart. Aortic Obstruction.*
2. Hutchinson, W. *The Liver as a Toxin Filter.*
3. Emery, W. D. *Serumtherapy.*
4. *Middleton, G. S. *Diagnosis of Pleural Effusion and Empyema in Children.*
5. Divine, T. *An Inquiry into the Mortality in Infancy.*
6. *Bennet, A. G. *Physical Methods of Treating Heart Diseases.*
7. *Poynton, F. J. *A Review and Study of Some Recent Literature upon Arthritis.*
8. Fitzgerald, G. W. *Prophylactic Treatment of Post-Partum Hemorrhage.*
9. Downey, W. *A Case of Sarcoma of the Temporal Dura Mater which Simulated a Suppurative Mastoiditis.*
10. Bushnell, F. G. *The Nature of Malignant New Growths of the Testis.*
11. Barry, D. T. *The Immediate Treatment of Ruptured Perineum.*
12. Moxon, H. W. *The Etiology, Pathology and Treatment of Infantile Paralysis.*

4. The writer compares the physical signs of fluid with those of consolidation as found in adults. In children the distinction is much harder to make. He considers a diminished vocal fremitus in children to be the most trustworthy sign of fluid. Skoda's tympanitic note in the upper part of the chest is often mistaken for a pneumothorax. According to his view, there are no sure ways of determining whether a fluid is pus or serum except by a needle. Constitutional signs and the history of the case are of more importance than local signs in making the distinction.

6. Bennet thinks that exercises should always be combined with the Nauheim treatment. A mental attitude of firm confidence is essential; most patients require more or less training before taking a course of baths; one of the hardest things to do is to estimate the patient's capacity for treatment. Nauheim is not a panacea for all kinds of heart disease; it acts best in simple dilatation following acute illness; next best in chronic myocardial affections. He gives the details of preparing artificial Nauheim baths. He believes that there is an actual absorption of salt from the skin, but that the chief action of the baths is by means of the CO_2 upon the superficial blood vessels and respiration. He concludes that by means of these baths the capillaries are dilated and the heart relieved; the pulse slowed, and ventricles more completely emptied; that the tone of the capillaries is increased and that there is a reflex nervous action on the cardiac ganglia; that the action of skin and kidneys is increased.

7. Poynton reviews the recent literature upon arthritis with especial reference to the bacteriology and the rôle played by the tonsils.

Deutsche Medizinische Wochenschrift, No. 47.

Nov. 22, 1906.

1. *Kraus, F. *The Heart in Diseases of the Thyroid Gland.* (*Kropfherz.*)
2. *Erb, W. *Clinical Cases.*
3. Stadelmann, E. *The Treatment of Typhoid.* (Continued article.)
4. *Schmidt, A. *The Treatment of Gastric Ulcer.*
5. König, F. *The Effect of the Introduction of the X-ray on the Treatment of Fractures.*
6. Hegar, A. *The Diet of the Puerpera.*
7. Schmidt-Rimpler, H. *Remarks on the Influence of Impaired Vision on the Earning Capacity, with Regard to the Medico-Legal Aspect.*
8. Denker, A. *The Treatment of Diseases of the External Ear.*
9. Ganghofner and Langer. *The Applicability of the Method of Diversion of the Complement as a Means of Demonstrating Heterogenous Proteid in the Blood.*

1. Kraus first describes the purely mechanical way in which a goiter may, by interference with respiration, cause dilatation of the right side of the heart, secondary to emphysema. The syndrome of "goiter-heart" (Kropfherz) is considered to be the group of cardiac symptoms which result from abnormal function of the thyroid in cases of goiter which are not true Graves's disease. The

distinction from the latter is usually possible by careful observation of the course; by the lack of eye symptoms, except a slight exophthalmos, usually unilateral and due to pressure on the sympathetic; by the lack of progressiveness of the nervous symptoms, and by the very prompt relief after excision of the goiter. The symptoms in the milder form consist of tachycardia, especially after exercise, and a fine tremor involving hands and tongue only; the apex beat is increased in force. In more advanced cases there is dilatation of the heart, which, as shown by the x-ray, may vary considerably from time to time, and disappears entirely after a successful excision of the goiter. Alimentary glycosuria and diarrheas, so common in true exophthalmic goiter, are absent in these cases, which are sometimes called "secondary" Graves's disease. In the light of present knowledge, exophthalmic goiter proper is to be considered as due chiefly to a disturbance of function of the thyroid gland, the nature of which is still doubtful. This theory, however, does not explain all the facts, and it is necessary to suppose also an increased irritability of the sympathetic system. The experiments of Kraus and others with single injections of iodide of thyreoglobulin gave conflicting results with regard to the circulatory system.

2. Erb reports cases illustrating a rare type of acute poliomyelitis, in which the upper part of the cervical cord, sometimes also the medulla, are implicated. The arm, shoulder and neck muscles, sometimes the heart and respiration are involved; death took place in one case. The latter part of his paper deals with intermittent claudication, and emphasizes the importance of examination of the foot pulses in cases of pain in the lower extremity, especially with a view to the prevention of arteriosclerotic gangrene by early appropriate treatment.

4. Schmidt advises, as to diet in ulcer of the stomach, a modification of the Leube method in the direction of greater liberality, agreeing with Lenhartz in many respecst. He does not go so far as the latter, however, and cannot sanction the giving of food of any sort by mouth immediately after hemorrhage. Rectal feeding is advised only for those cases which have recently had a serious hemorrhage, or which threaten to perforate. To supplement the milk diet, he recommends eggs, gelatin, butter, cream, sugar, rice. The application of flaxseed poultices has seemed useful. He advises operation in the following instances: (1) Where in spite of treatment, pain, vomiting and incapacity for work persist; (2) pyloric stenosis of medium or severe grade; (3) perigastric adhesions with localized pain; (4) perforation; (5) repeated hemorrhages. With regard to the last named, the chances are best when the hemorrhages have been small. Gastro-enterostomy is the operation of choice.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 47.
Nov. 20, 1906.

1. *Cloetta, M. *The Cumulative Action of Digitalis.*
2. *Hamburger, F. *The Superficial Action of Percussion*
3. *Lichtenberg, A. *Experimental Work on the Origin of Pneumonia after Anesthesia.*
4. *Schmieden, V. *Chronic Interstitial Pancreatitis.*
5. *Blum, L. *The Diagnostic Significance of Ulcers in the Throat in Typhoid Fever.*
6. *Goett, T. *Remarkable Blood Findings in Neurasthenics.*
7. Weber, L. W. *The Isolation Ward in Small Hospitals*
8. *Laméris, H. J. *Congenital Ankylosis of the Phalangeal Joints.*
9. *Goldflam, S. *A Case of Congenital Family Ankylosis of the Phalangeal Joints.*
10. Franze, P. C. *The Technic of Orthodiagraphy.*
11. Jung, C. G. *Freud's Theory of Hysteria*
12. *Riehl, M. *Macroscopic Asthma Spirals.* (Concluded.)

1. That digitalis has a cumulative action is shown, according to Cloetta, both by clinical experience and Fraenkel's experiments with crystallized digitoxin on cats. Digalen, on the other hand, which is an amorphous form of digitoxin, seems to have no such cumulative action, either on man or animals. Cloetta's experiments show that the molecular weight in the crystallized form was just twice that of the amorphous, but this difference does not explain the poisonous effect of the former, for crystallized digitoxin which had been rendered amorphous still showed cumulative effects. These must be due, therefore, in some way to the act of crystallization. The cumulative action of some preparations of leaves of digitalis is probably due to some change in the form in which the digitoxin is present, analogous to crystallization.

2. This interesting article by Hamburger deals with the theory of percussion sounds of the chest, and especially with the causes of the relative heart and liver dulness. Williams in 1838 was the first to propose a theory on the subject. He thought that the percussion note was due solely to the vibrations of the chest wall. Skoda, on the other hand, claimed that it was due entirely to oscillations of the air in the lungs. The true theory, according to Hamburger was propounded by Mazonn in 1852, who said that the percussion note was due both to the vibrations of the chest wall and to those of the air in the lungs. He proved the share of the chest wall in bringing out the note by the following simple experiment; if the hand of an assistant be placed on the chest near the spot percussed, the note becomes dull, a fact which can only be explained by the prevention of the vibrations of the chest wall. Hamburger claims that the liver in a similar way takes part in the production of the relative hepatic dullness, contrary to the usual teaching, which is that the relative dulness is due to the relatively small volume of lung tissue which is brought into vibration. The paravertebral triangle of Grocco and Rauchfuss (a triangular area of dullness found in pleuritic effusions on the sound side at the base behind, near the spine) is due, according to Hamburger, to a similar phenomenon, the fluid acting as a damper to check the vibrations in the neighborhood.

3. Twenty-two rabbits were subjected to chloroform narcosis under various circumstances by Lichtenberg. Diffuse spots of atelectasis, emphysema of the edges of the lungs, and occasional areas of hemorrhage were found to be almost constant in those animals examined immediately following the narcosis. Typical bronchopneumonia was present in lungs examined two days after the narcosis. These results were present in like degree whether the chloroform was combined with air or with pure oxygen. The time of administration of the chloroform much exceeded that of the ordinary administration in the human, and no attempt is made by control experiments on other animals to give due weight to the fact that the rabbit is an animal by nature especially susceptible to all forms of narcosis.

4. Schmieden reports a case of cirrhosis of the pancreas in which the organ could be plainly felt in the epigastrium as a transverse nodular mass. Sahli's glutoid capsule reaction did not appear for twenty-one hours. [This consists of the administration of iodoform in glutoid capsules which are digested only by the pancreatic juice; iodine should normally be demonstrable in the sputum within six hours.] The diagnosis was made certain by the excision and examination of a small piece of pancreas, and the patient recovered without other measures. S. has been able in a few cases to palpate the normal pancreas; the stomach should be empty at the time of examination. Another case which showed very similar symptoms, and in which the pancreas was also palpable and hard, turned out at the operation to be cancer. The glutoid reaction was delayed in this case also. The reaction is of no value if negative, but if positive, *i. e.*, delayed, is fairly conclusive evidence of disease of the pancreas.

5. The so-called typhoid ulcer of the throat occurs with considerable frequency in some epidemics, chiefly in the early stages of the disease. It is situated usually near the pillars of the fauces, is oval, shallow with a grayish base and slightly elevated and reddened border. They are to be regarded as catarrhal ulcers, due probably to a secondary infection and not to the action of typhoid bacilli. They have considerable diagnostic importance but should not be considered pathognomonic, as Blum's cases show. He observed such ulcers in a case of phthisis and in one of miliary tuberculosis; in both of these the ulcers proved not to be tuberculous.

6. Goett reports four cases of apparent anemia occurring in neurasthenics. He found red counts ranging from 2½ to 3½ millions, with normal value for hemoglobin

so that the color-index was high, from 1.2 to 1.8. This decrease of the blood corpuscles he attributes to dilatation of the capillaries resulting from vasomotor influences. For associated with such dilatation there is a reduction in the blood pressure, which causes an immediate flow of lymph from the lymph spaces through the capillary walls. G. found that a marked reduction in the red count could be produced in himself by dipping the arm in hot water. The discrepancy between the hemoglobin and the red count was probably due to the fact that the former was taken first, possibly before the vasomotor dilatation had had time to produce a dilution of the blood.

8 and 9. These are cases of a rare congenital anomaly. In the first there was bony ankylosis of the first phalangeal joint of the ring finger of both hands; the second showed fibrous ankylosis of the terminal joints of most of the fingers, and was remarkable in that twenty-five relatives had shown a similar deformity.

12. Riehl describes a type of asthma characterized by the presence of giant spirals in the sputum. These were up to 20 cm. long and 3 cm. broad, and showed plainly the central thread and spiral formation. It is interesting to note that dyspnea was nearly absent, owing no doubt to the fact that only a single large bronchus was occluded at any one time. Physical examination showed acute emphysema of moderate grade with localized râles and dulness and diminution of respiration. It is to be regarded as a form of asthma in which a few large bronchi are alone involved. Four cases are reported.

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Miscellany.

FINAL FINANCIAL STATEMENT OF THE COMMITTEE OF ARRANGEMENTS FOR THE LAST ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The final statement of the Finance Committee has been rendered to the Committee of Arrangements for the annual meeting of the American Medical Association in Boston last June, and is as follows:

STATEMENT.

Receipts

Subscriptions from medical profession,	$20,600.09
Subscriptions from other sources,	6,362.00
Interest on deposits,	190.88
Receipts from general exhibit,	4,889.15
Receipts from guide-book,	2,725.15
	$34,767.27

Expenses:

Committee of Arrangements,	$4,503.33
Committee 1: Finance,	296.85
Committee 2: Section Meeting Places, General Exhibit, Printing and Programs,	8,526.71
Committee 3: Hotels and Transportation,	749.64
Committee 4: Entertainments, Banquets, Ladies,	8,551.75
Committee 5: Registration, Badges, Bureau of Information,	2,055.17
Other expenses (estimated),	257.68
Total expenses,	$24,941.13
Unexpended balance,	9,826.14
	$34,767.27

In accordance with an agreement made when subscriptions were solicited and with the recommendation of the Auditing Committee, the unexpended balance has been used to pay a rebate of 43% to subscribers of $50 and over. The result is very creditable to the management of the Committee of Arrangements.

Correspondence.

LETTER FROM LONDON

(From our Special Correspondent.)

The Court of King's Bench. The Doctor's Dilemma. Protozoölogy. Blastomycosis. The Royal Society. Malta Fever. The Method of Science. The Staphylococcus Albus. Dr. Symes Thompson. Dr. Schorstein.

London, Dec. 1, 1906.

Mr. Editor: All surgical London has been at the law courts this week to hear the case of Southern *v.* Thomas and Another. At a previous trial of the same case in Wales, the jury disagreed, though it was generally known there was a majority of 8 to 4 for the plaintiff. The defendants are Mr. Lynn Thomas, consulting surgeon, of Cardiff, and a general practitioner; from them the plaintiff claimed damages for alleged lack of reasonable skill and care in the treatment of a fracture of the surgical neck of the humerus, with dislocation of the head. The trial has lasted many days, and culminated in a tense moment when the jury again declared themselves unable to agree. They had, however, submitted a question to judge and council, and it immediately became evident from the demeanor of the interested parties in court, that the sympathies of the jury were again with the plaintiff. After the judge had descanted upon the duties of minorities and sent the twelve back to reconsider their position, a verdict was found for the plaintiff with £100 damages — an amount so ridiculously small as almost to belie the finding. The sting, however, comes in the costs, which must be extremely heavy. In court one was moved to laughter at the sight of a well-known surgeon pleading for mercy from Mr. Rufus Isaacs, K.C., with an assumption of abject fear; at the sight of a learned judge gravely assisting Mr. Rose, who earlier in the trial had asserted that a serving-maid was all *he* wanted by way of an expert assistant, in the demonstration of the mechanics of a fracture.

Apart, however, from the humors of crossexamination, one cannot but weep over the spectacle of the heads of the profession, Pepper, Battle Rose on the one hand, Sir Frederick Treves, Sir William Bennett, Sir Thomas Smith, Bowlbey, Page, Waterhouse and Lane on the other, in fighting array over the proper treatment of a fracture!

Bernard Shaw must rub his hands and think, "What an advertisement for my play at the Court Theatre!"

Your readers have already heard about "The Doctor's Dilemma," but they may be interested to hear that the author and Sir A. E. Wright, of "Opsonin" fame, forgather. The hero of the play has so close a *circumstantial* resemblance to Professor Wright as to make the allusion in very questionable taste. The Shavian way of showing gratitude for instruction in the intricacies of serum pathology must have wrung from the professor a cry "Save me from my friend!"

By the way, I was amused to hear one of the characters in the play say slightingly of another that he "didn't know a vaccine from an antitoxin," for that very remark was made to Bernard Shaw himself by a pathologist friend of mine, when the great G. B. S. was talking learnedly on some kindred topic of which he knew not the rudiments.

The inaugural lecture of the new chair of Protozoölogy in London University was delivered by Professor Minchin, upon the scope and problems of his science. Your compatriots Smith and Kilborne naturally obtained their meed of praise no less than Lavaran and Bruce, mention of whom reminds me of an amusing incident which happened at South Kensington Museum. In the main hall, there are some very beautiful models illustrating malarial and trypanosome diseases. The tsetse fly is upon a colossal scale, a fearsome and terrible dragon some foot or so long, whilst the real fly is mounted quite inconspicuously. A coster from the East end, after gazing wide-eyed at the model for a minute or two, was heard to remark, "Lor' love us, Bell! I ain't much wonder as them 'orses in South Africa 'ad a dam 'thin time if there's many o' them flyin' around!"

At the Dermatological Society, Hartigan of Charing

Cross Hospital recently showed a case of blastomycosis in a girl of eleven years. The lesions, of a lupoid character, occurred on the nose and cheek. This is believed to be the first case reported in this country. Another case of a strikingly similar nature, occurring on the back of a man's hand, has been shown by Colcott Fox, as possibly blastomycotic, but in this instance we believe inoculation experiments have failed. I am aware of a remarkable case of hyperostosis of the superior maxilla, for which excision of the jaw was performed in the belief of the malign nature of the lesion, and in which the only bacterial findings (by Hebb) were of bodies closely resembling blastomyces. Shattock expressed his opinion that they *were* blastomyces, but even so, there is no proof of their relation to the chronic inflammatory condition.

The annual meeting of the Royal Society is the occasion of an address by the president, in this instance, Lord Rayleigh. It was announced that the Copley Medal of the society was awarded to Prof. Elias Metchnikoff, and the Darwin Medal to Prof. Hugo de Vries, both foreign members.

At the dinner, the toast of the Royal Society was proposed in an eloquent speech by the new Norwegian minister, Fridtjof Nansen, who referred incidentally to the various investigations intrusted by the government to the society, and mentioned particularly the latest commission, that on Malta fever. He congratulated them upon the important discovery resulting therefrom as to the mode of transference of the virus by milk from infected goats.

It is worth noting in this connection that since precautions have been taken against the use of goats' milk by the garrison, the cases per mille per mensem have dropped from 9.6 to 2.0.

We must be thankful for this solid gain, and when next we touch at Valetta, must possess our souls in patience if we see no more the pleasant sight of those flocks of goats meandering down the long flights of steps the Maltese call a street.

In the long vacation at Oxford, lectures are given to students, not undergraduates, from all parts of the country, under what is known as the University Extension Scheme. Last year a course was given on the method of science. Various men of science illustrated the method as applied, each to his own special subject of research. The idea was a happy one, and really showed a unity of methods diverse in seeming; but it is mentioned here because Professor Sherrington, who represented physiology, spoke in the most illuminating manner of cells and cell surfaces, and of the wonderful possibilities of those surfaces for chemical or physical processes. The lectures are now available in book form, and are no less valuable a lesson to us, men of one science and art, than to the students to whom they were addressed.

In their monograph on the bacteriology of peritonitis Dudgeon and Sargent have suggested that the staphylococcus albus plays a very beneficent rôle: by exciting the wrath of the phagocytes, they prepare a warm reception for organisms less innocent who may follow in their wake.

Some such ideas may have been in the mind of Sir Frederick Treves, when he stated in a lecture at Edinburgh that the popular conception of disease as something malignant, was wrong: rather is it beneficent. Thus boldly, at any rate, did his words reach the wider public, robbed of the context, of the whimsical suggestion of paradox, no doubt lent by his voice and gesture. Lest he should forget his remark, Arthur Rackham has painted a delightfully amusing picture of a physician entering his patient's room amid a crowd of fantastic germ-hobgoblins, and everybody is viewing it at an exhibition of his drawings at the Leicester galleries.

I have to record two deaths.

Dr. Symes Thompson was consulting physician to the Brompton Hospital for consumptives which owed so much to his father, the famous Dr. Theophilus Thompson, F.R.S. He was well-known to the public in his capacity as Gresham lecturer in physic, and was for many years provost of the Guild of St. Luke, a religious organization whose high aims are not to be obscured by a touch of very human vanity which takes them to their annual service at St. Paul's cathedral in all the glory of gown and hood.

Dr. Schorstein was also on the staff of the Brompton Hospital, and was physician to the London Hospital. His personality was as charming as his attainments were high. His death at the early age of forty-three, of acute diabetes, is a great grief to his many friends.

C.

IS BORIC ACID INNOCUOUS?

Boston, Dec. 11, 1906.

Mr. Editor: In the Oct. 4, 1906, issue of your esteemed Journal appears a letter from H. H. Langdon, Esq., food expert, in which he attacks an editorial published in the New York *Medical Journal*, April 17, 1906, and reproduced in *The Truth*, of Buffalo, N. Y., of June 30 of the same year. Although this letter savors strongly of Ladies' Home Journalism, I cannot refrain from emitting a few reflections upon it, merely for the reason that I happen to be the unfortunate parent of the editorial in question, which is entitled "Boric Acid and Appendicitis."

Mr. Langdon states that he has had "a great deal of experience with boric acid and has always found it a soothing, cooling, healing sedative agent. The action of boric acid on the cuticle and mucous membrane is to allay inflammation, not to cause it. It is recognized as the most innocent antiseptic extant." Further on, the food expert states that "if the vermiform appendix were inflamed, boric acid would have a tendency to allay the inflammation instead of exciting it." I willingly grant that the surgical pathology of appendicitis is as yet far from fully elucidated, and I am glad to know that we have in Mr. Langdon apparently both a surgical pathologist and experimental pharmacologist to enlighten us in these matters, but I feel compelled to refer to other authorities in the *surgical* world, quite as eminent.

In the Oct. 27, 1906, issue of the St. Louis *Medical Review* appears an article from the pen of no less a person than Mr. Reginald Harrison, of London, entitled "A Note on Boric Acid Relative to Appendicitis," in which the author upholds the views put forth in the editorial above alluded to. He goes on to say that "in the *Lancet* of March 14, 1903, an annotation appeared on the disturbing effects of boric acid on the digestion of healthy persons and invalids when taken internally. I ventured to indorse this statement in consequence of seeing many persons suffering from these effects, in a letter which appeared the following week. The prominent symptom complained of was dyspepsia accompanied by very great and distressing flatulency. Accordingly, as stated in my letter, I abandoned boric acid for the purpose mentioned and used boracite, which I have continued to find an excellent and unimpeachable substitute." Allow me to quote further from Mr. Harrison's paper:

"After enumerating a number of food preservatives, of which boric acid was a frequent one, Dr. Richard Jones, in his address to the North Wales Branch of the British Medical Association, observes, there can be no doubt that the continuous introduction of these chemical susbtances into the system interferes with digestion, depresses the heart action, and injuriously affects the kidney; and further he points out that the rate of deaths during 1885–1904 from enteritis, appendicitis and perityphilitis has increased from 133 to 305 per million."

In his treatise on appendicitis, Dr. Deaver, of Philadelphia, U. S. A., states that "of the exciting causes of appendicitis from the clinical point of view, disturbances of digestion are the most important. Such is the prominence of these in the etiology of appendicitis and with such constancy have they been observed, that it is unhesitatingly asserted that appropriate inquiry will elicit a history of such disturbances in almost all cases."

It is to be earnestly hoped that Mr. Langdon will confer a report of his experimental researches on the curative action of boracic acid on the inflamed mucosa of the appendix, but until it has been conclusively shown that the action of this drug upon an inflamed appendix is soothing, cooling and healing, I shall still feel compelled to resort to the ordinary surgical procedures commonly directed against this pathologic process.

Very truly yours,

Charles Greene Cumston, M.D.

RECORD OF MORTALITY

For the Week ending Saturday, Nov. 24, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,368	350	Quincy	13	4
Chicago	584	157	Waltham	9	3
Philadelphia . . .	516	127	Gloucester	—	—
St. Louis	—	—	Pittsfield	—	—
Baltimore	218	52	Brookline	3	—
Cleveland	—	—	North Adams . .	5	1
Buffalo	—	—	Chicopee	6	2
Pittsburg	—	-	Northampton . .	7	1
Cincinnati	—	—	Medford	1	—
Milwaukee	—	—	Beverly	5	—
Washington . . .	—	—	Hyde Park . . .	4	1
Providence . . .	75	24	Newburyport . .	—	—
Boston	254	69	Leominster . . .	9	4
Worcester	46	9	Melrose	1	1
Fall River	36	11	Woburn	5	1
Cambridge	22	7	Marlborough . .	3	0
Lowell	32	10	Westfield	4	—
Lynn	16	7	Peabody	—	—
New Bedford . .	29	13	Revere	3	1
Springfield	22	8	Clinton	5	1
Lawrence	16	5	Attleboro	2	0
Somerville	21	5	Adams	3	—
Holyoke	12	7	Gardner	–	—
Brockton	14	1	Milford	2	1
Malden	16	7	Weymouth . . .	2	1
Salem	16	4	Framingham . .	2	1
Chelsea	15	2	Watertown . . .	5	2
Haverhill	13	2	Plymouth	—	—
Newton	8	2	Southbridge . . .	5	1
Fitchburg	4	0	Wakefield	—	—
Taunton	19	4	Webster	—	—
Everett	9	2			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING DEC. 15, 1906.

F. M. Furlong, surgeon. Detached from the Bureau of Medicine and Surgery, and ordered to duty at the Naval Hospital, Mass.

B. L. Wright, surgeon. Detached from the "Columbia," and ordered to the Naval Hospital, New York, for treatment.

M. K. Johnson, surgeon. Ordered to duty at the Naval Hospital, Norfolk, Va.

W. B. Grove, surgeon. Detached from the "Iowa" and ordered to duty at Newport News, Va., in connection with fitting out the "Minnesota" and for duty on board that vessel when placed in commission.

E. J. Grow, surgeon. Detached from the "Ohio" and ordered home to await orders.

G. P. Lumsden, surgeon. When discharged by the Naval Medical Examining Board, Washington, ordered home to await orders.

C. M. Oman, passed assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the "Ohio."

L. W. Bishop, passed assistant surgeon. Detached from the "Dubuque," and ordered to the "Iowa."

R. G. Heiner, assistant surgeon. Detached from the "Scorpion" and ordered to the Navy Yard, Washington, D. C.

P. T. Dessez, assistant surgeon. Detached from the Marine Barracks, Washington, D. C.; ordered to duty at Naval Hospital, Boston, Mass.

J. E. Gill, assistant surgeon. Detached from the Navy Yard, Washington, D. C., and ordered to the "Dubuque."

H. A. May, assistant surgeon. Detached from the "Iowa" and ordered to the "Indiana."

I. S. K. Reeves, passed assistant surgeon. Detached from duty at the Naval Hospital, Boston, Mass., and ordered to the "Scorpion."

G. G. Hart, acting assistant surgeon. Detached from duty at the Marine Recruiting Station, Atlanta, Ga., and ordered to duty with the Marine Recruiting Party at Dallas, Texas.

J. P. Traynor, passed assistant surgeon. Detached from duty on board the U. S. R. S. "Southery," Navy Yard, Portsmouth, N. H., and ordered to duty at the Navy Yard, Boston, Mass.

C. E. Ryder, assistant surgeon. Detached from duty at the Navy Yard, Boston, Mass., and ordered to duty at the Navy Recruiting Station, Omaha, Neb.

R. B. Chapman, assistant surgeon. Ordered to duty at the Navy Yard, Mare Island, Cal.

H. Shaw, assistant surgeon. Detached from duty at the U. S. Naval Hospital, Naval Home, Philadelphia, Pa., and ordered to duty at the Naval Hospital, Pensacola, Fla.

C. C. Grieve, assistant surgeon. Detached from duty at the Navy Recruiting Station, Omaha, Neb., and ordered to duty on the U. S. R. S. "Southery," Navy Yard, Portsmouth, N. H.

T. G. Foster, assistant surgeon. Detached from the "Chicago" and ordered to the "Charleston."

E. T. Morse, pharmacist. Detached from duty at the Naval Medical School Hospital, and ordered to duty at the Naval Dispensary, Navy Yard, Boston, Mass.

APPOINTMENT.

Dr. Emmet, Knight of St. Gregory. The venerable Dr. Thomas Addis Emmet has been made a Knight of St. Gregory by Pope Pius X, in recognition of his distinguished services to medical science and his loyalty to the Roman Catholic Church, and he was formally invested with the insignia of the order by Archbishop Farley.

SOCIETY NOTICE.

Eastern Section of the American Laryngological, Rhinological, and Otological Society. — The Annual Meeting of this Section will be held in Rhode Island Hall of Brown University at Providence, R. I., Saturday, Jan. 5, 1907.

Frank B. Sprague, M.D., *Chairman.*

RECENT DEATHS.

Charles Bowker, M.D., M.M.S.S., died in Bernardston, Dec. 10, 1906, aged eighty-two years.

Dr. Alfred Wild Gardner, of New York, died on Dec. 10, from septicemia, the result of a prick in the hand which he received several weeks ago while performing an operation. He was forty-eight years of age, and a native of Sharon Springs, N. Y. He was graduated from the College of Physicians and Surgeons, New York, in 1890. Dr. Gardner was a man of high scientific attainments. In 1903 he collaborated with Dr. Coleman Kemp in the preparation of an elaborate paper entitled "Experimental Researches in Resuscitation after Death from Chloroform," which was read before the Medical Association of the Greater City of New York and afterwards published in the New York *Medical Journal*, and which attracted unusual attention. The paper gave the results of a large number of experiments on dogs, in which the measures employed were cardiac massage after opening the chest, combined with artificial respiration and saline infusion.

Dr. William Wilson Pursell, of Whitehouse Station, Hunterdon County, N. J., died on Dec. 9, from cerebral apoplexy. He received the degree of Bachelor of Science from the Normal Institute at Carversville, and in 1874 was graduated from the Jefferson Medical College, Philadelphia. He was one of the leading medical men of Hunterdon County, where all his professional life was spent.

BOOKS AND PAMPHLETS RECEIVED.

The Diseases of the Nose, Throat and Ear. By Charles Provost Grayson, A.M., M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1906.

Stöhr's Histology, Arranged upon an Embryological Basis. By Dr. Frederic T. Lewis. From the twelfth German edition by Dr. Philip Stöhr. Sixth American edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Dec. 1, 1906. Philadelphia: Lea Brothers & Co.

The Diagnosis of Nervous Diseases. By Purves Stewart, M.A., M.D., F.R.C.P. Illustrated. London: Edward Arnold. 1906.

Hygiene. By J. Lane Notter, M.A., M.D., and R. H. Firth. Sixth edition. London, New York and Bombay: Longmans, Green, & Co. 1905.

The Surgical Importance of the Cervical Rib. By Carl Beck, M.D. Reprint.

Three Ureters Demonstrated during Life; Ureter Catheterization Giving Three Different Urines, One Infected with Gonococci. By Bransford Lewis, M.D. Reprint.

Some Linguistic Principles and Questions Involved in the Simplification of the Nomenclature of the Brain. By Burt G. Wilder, B.S., M.D. Reprint.

Anatomic Nomenclature: an Open Letter to Prof. Llewellys F. Barker. By Burt G. Wilder, B.S., M.D. Reprint.

Original Articles.

INTOLERANCE OF FATS.*

BY DAVID L. EDSALL, M.D.,
Assistant Professor of Medicine, University of Pennsylvania.

I HAVE had some hesitation about discussing the subject of which I am to speak, because I have few substantial facts to add to what is already known, and because, under this heading, I am obliged to refer to a considerable extent to matters that may appear somewhat trivial and will certainly seem, to some of you, at least, old and time-worn. But while I think it was expected that I should choose a more specific subject in dietetics, various reasons have led me to discuss this one. In the first place, I continually grow more thoroughly convinced — and this, I am sure, is the case with every one who devotes much thought to such matters — that in considering dietetic problems we must have quite as clear knowledge of the tools that we are obliged to use as we have of the conditions in which they are to be employed; and that we must also know how to use these tools with the individual, quite as much as with the disease.

It is for this reason that I give so general a title, rather than one relating to some specific disease or class of diseases; and I want to discuss intolerance of fats because, while there is a very general realization that there are limitations in the powers of different persons to utilize protein and carbohydrate safely and successfully, there is, I think, less general and less accurate attention given to the not uncommon cases in which there is digestive or metabolic disability in the utilization of fats, and little discussion is given the subject by most writers.

It has been traditional with the laity for many years that fat is an exceedingly nutritious form of food. We have indeed all been impressed with this fact since, in our childhood, we heard of the diet of the Esquimaux; and ever since the nutritive values of various forms of foods were first accurately measured this fact has been only more firmly established and made more emphatic. Fats, as is well known, have, for a given weight, more than twice the combustion value of protein or carbohydrate, and, furthermore, fatty foods, as they appear on the table, are very often more concentrated than are most protein or carbohydrate foods, the latter very frequently containing an extremely large proportion of water and often of waste material also. It is only natural, therefore, that foods containing a high percentage of fats should be used with freedom in cases in which it is desirable to improve nutrition; and in recent times there has been so much and such wise emphasis laid upon the important rôle played by depraved nutrition in a large proportion of diseases of various kinds that generous feeding has come to be an essential element of treatment in cases that are met with almost daily. Such generous feeding almost always means the free use of foods that contain a relatively large proportion of fats — milk, cream, butter, eggs, olive oil and the like.

I would not protest for a moment against the wisdom of such a measure, when used with discrimination. On the contrary, I am confident that the attitude of the profession in this regard is one of the most fortunate things, for many patients with chronic disease especially, that has developed in many years; but I think I may with justice say that among those that deal chiefly with patients that are well past their infancy too little attention is often given to the fact that certain of the great classes of foods, rather than certain culinary preparations, may be difficult for the patient to handle. Since I am at present dealing solely with the fats in the diet, I would especially say that sufficient emphasis is not ordinarily laid upon the fact that individual patients are not able to utilize fats in large amount, and some, indeed, cannot utilize them in normal amounts. Sufficient attention, too, is not given to the clinical methods by which one may determine — or, better, attempt to determine — whether a patient does make use of the fats that are given him.

Open rebellion of the digestive tract against fatty foods is, of course, recognized; and any student can recite a few instances, such as fatty stools in icterus, pancreatic disease and extensive structural change of the intestinal wall, as examples of poor digestive utilization of fats. At present, also, every one is well acquainted with the fact that fat-metabolism may go dangerously astray in some conditions, more especially in diabetes; but I do not believe that enough thought is given to the not uncommon, comparatively minor disturbances that seem to be dependent upon a greater or lesser inability to take fats, and are often first brought out by an attempt to push fats somewhat, in the desire to improve general nutrition.

I cannot make an attempt to give a systematic and complete review of these conditions, and shall merely touch in a fragmentary and hasty way upon a number that are more or less well known but, apparently, not always thought of in a therapeutic way. I shall refer in somewhat greater detail to a group of cases that I have not seen described, but that constitute, I believe, rather definite and somewhat specialized examples of fat intolerance. I wish, also, to give a little consideration to the question of determining the degree of digestion and absorption of fats, as this is of interest in connection with any of the cases of which I shall speak, although, unfortunately, it is, as yet, of limited practical utility. I shall not try to discuss disorders in the utilization of fat that result from pancreatic or very grave intestinal disease, because this would require too much additional time, and because I am intentionally dealing chiefly with rather minor disturbances.

Digestive difficulty in utilizing fats appears to increase in commonness as one goes back toward infancy; in other words, the young seem to be, on the average, more limited in their powers of digesting fats than are adults: I think it probable that they are also more limited in their ability to metabolize fats properly. It is only recently that pediatrists have given serious attention to the question of fat indigestion; and yet I think that most experienced pediatrists would say at present that this is exceedingly common, and I am sure that a considerable proportion would say that it is the most common form of disturbance produced by milk, although the latter appears to me to be an extreme view. There is no doubt, however, that those common cases of persistent regurgitation of small amounts of curdled milk, and likewise many more definite instances of vomiting, — whether this be the vomiting that occurs occasionally without other severe symptoms, that which appears with the symptoms of more or less violent gastritis or gastro-enteritis, or the gastric irritability that frequently follows or accompanies acute disease in infants — are due in large proportion to the fat in the food; and the symptoms may often be overcome by largely reducing the fat, and subsequently increasing it very gradually. The same thing is true of intestinal disturbances, but perhaps in less degree. Looseness of the bowels, even when associated with curdy masses in the stools, is not infrequently dependent upon the fats in the milk; and also the passing of hard, often extremely dry, stools, usually very pale in color, has been insisted upon by Czerny and Keller, probably with propriety, as due, in the great majority of instances, to inability to manage the amount of fat the infant is taking. The stools in instances of the latter kind usually consist largely of fat, in the form of soaps, and the infants are often in unsatisfactory general condition, though by no means always under weight. They are not infrequently more or less fat, but are pasty looking, flabby and peevish, and evidently do not feel well.

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* Read by invitation at the meeting of the Clinical Section of the Suffolk District Medical Society, Nov. 14, 1906.

I have mentioned these types of digestive disturbance in infants, not because I want to discuss the regulation of fats in the diet of infants, but because I am convinced that a little knowledge of dietetic and other matters relating to infancy and early childhood has often been helpful to me in interpreting and managing the disorders of older patients; and all those disturbances due to fat that I have referred to as occurring in infants have, I am sure, their close analogues in older persons. The cue to the management of such conditions in older persons, though partly known before, has, in considerable part, been furnished by the experience of pediatrists with infants, whose diet is so simple that it is comparatively easy to modify with fair accuracy the various elements that it contains and to determine which is at fault.

It is an old story that fats may cause gastric disturbance in older patients as well as in infants, but I have repeatedly found little ways of extending this fact and of making use of it that I had not recognized before, or had not fully appreciated. In half-grown or older children, occasional unexplained, but recurring, attacks of vomiting, which may be mild and transitory or more severe, are at times done away with entirely or almost entirely, if one very largely excludes fats from the diet. This is, of course, recognized by many observers. In occasional instances, these attacks may resemble so-called recurrent vomiting, and I have seen one case, at least, in which there were all the characteristics of typical recurrent vomiting and in which the first severe attack seemed to have been precipitated by pushing the fats in the diet. Prolonged freedom from attacks followed upon decided reduction of the fats, while the attacks returned when, in accordance with other advice, the mother again increased the fats. They again subsided when the fats were once more greatly reduced. This case I shall describe briefly later.

In cases with such gastric symptoms, the amount of fat that has been taken is, at times, not above the normal; in other words, the patient appears to have a natural inability to use normal amounts of fats. In other instances, and I think that these are much more common, it is easy to determine by carefully investigating the diet that the patient has been on generous amounts of fat, though often on amounts that most persons can take without disturbance. Not uncommonly, it may be found that he has been on over-generous amounts, usually because he has been under weight or not very robust or has recently had some debilitating disease, and it has seemed desirable to build him up. It is exceedingly remarkable to note the extremes that are at times unconsciously reached in such cases by the parents of children that are out of health, or by older patients themselves; sometimes, unfortunately, as a result of rather loose orders by doctors. I have recently seen, for example, a boy of eleven years, whose doctor had advised that he be "fed up freely," and whose devoted mother was giving him a diet that a little conservative calculation showed to contain at least 250 gm. of fat a day. I think, indeed, that it almost certainly contained more than 300 gm., while the total caloric value of his daily food was unquestionably 5,000 to 6,000. One can hardly wonder that this boy was not capable of taking care, without disturbance, of the amounts that were given him; but lesser degrees of overfeeding are common, and careful detailed inquiry into the diet will often give the key to the treatment. In the cases that I am especially referring to, it will often show that the fats are particularly superabundant. Such conditions are seen more frequently in children than in adults, but this is, I think, largely because their diet is not regulated by their own choice but by those that watch over them. A child's appetite, when let alone, is very commonly a better guide than is an over-anxious parent, though the real method is, of course, to regulate accurately the amount that should be taken.

The same disturbances do, however, occur in adults, and particularly in those that are receiving more or less marked forced feeding. I have repeatedly seen phthisical patients that showed such conditions. It may be said that such cases do not deserve the term fat-intolerance but are simply instances of overfeeding, particularly with fats. I include them under the term, however, because I think that in a considerable portion of such cases the disturbance has been set up chiefly by the fats and that this has produced a subsequent actual intolerance of normal amounts of fat. One of the most important points in the treatment is, then, to reduce the fats to an abnormally low point. Some of these phthisical patients that I have mentioned, for example, had been very freely fed, and were referred to me on account of gastric symptoms. They could not take milk, cream or eggs without a good deal of distress and sometimes even vomited them; but they could with freedom take skimmed milk and eggs from which the yolks had been largely or wholly removed. I think, therefore, that they rebelled at the fats.

I have, perhaps, given the impression that I think these symptoms occur almost solely when an over-abundance of fats is given. Over-generous amounts are, of course, much more likely to cause such disturbances than are normal quantities, but it is perfectly well known that some persons cannot stand even normal amounts. A certain number of persons have, for example, real distress after taking milk or eggs, even in moderation. With milk this can sometimes be overcome by mere dilution or by modifying the curd in much the same manner as it is done for infants, using a cereal gruel or cracker dust, or some similar method of preparation. Quite as frequently, however, especially when burning, acid regurgitation or, as sometimes happens, vomiting, occurs after taking milk, the symptoms may be controlled by simply giving skimmed milk and subsequently adding very gradually small amounts of cream; and when eggs cause distress, it can often be overcome by removing, at first, some or all of the yolk, increasing quantities of this being afterwards added, thus slowly educating the stomach to take moderate quantities of fat.

Such symptoms occur even in normal persons, and in a variety of diseased states, but I think that they are particularly common in acute disease, such as pneumonia or typhoid fever. I still persist in using, in the course of typhoid fever, until the patient begins to brighten and grow hungry, a practically exclusive milk-diet. I do this deliberately, not so much because I am afraid of direct harm from other simple foods, as because I think it has been sufficiently shown that the digestive tract can take care of one form of food better than of a variety, since this simplifies its labors, and because there is no question that, of simple forms of food, milk is the most nutritious. I do believe, however, that digestive disturbance is occasionally due to milk in such cases, and I treat such disturbance by modifying the milk, much as if I were treating an infant, attempting to determine which element in the milk is chiefly at fault and to eliminate this element to a considerable degree, temporarily, at least. In those cases in which there is gastric distress or a tendency to vomiting, or in which there is mere looseness of the bowels without offensive diarrhea, skimming the milk often does good. I would say parenthetically, however, that I have no question that by far most commonly any digestive disturbance in acute disease — perhaps especially in typhoid fever — that is due to the milk, particularly when this digestive disturbance is troublesome diarrhea, is due to infection of the milk, and this is controlled in no other way than by securing good milk, by pasteurizing the milk, or by excluding milk from the diet. This question I have discussed at some length elsewhere.

One condition that is not commonly thought of as exhibiting intolerance for fat, one, indeed, that is so generally considered to be improved by a generous use of fats that I speak of it with some trepidation, is gastric hyperacidity. I fully concur in the general view that a large proportion of cases of gastric hyperacidity are benefited by the use of fats. It has been commonly believed that this is due, in considerable part, at least, to the fat directly reducing the secretion of gastric juice, but it appears now to be quite as probable that it is due to the improvement in general nutrition that fat produces; for, on the one hand, depraved nutrition is undoubtedly the chief factor in producing or, at any rate, in causing the persistence of hyperacidity in many cases; and, on the other hand, the recent observations of Pawlow's pupils have apparently demonstrated that the earlier studies that appeared to show that fats decrease the secretion of gastric juice were incomplete, and that this is only the first effect, while it is followed later by an increased secretion. However this may be, I am convinced that while most persons with hyperacidity do well on the free use of whole milk, cream and other fatty foods, a limited number are harmed by them and have an increase in their burning, acid eructation and other symptoms; and these added symptoms are in such cases controlled more or less completely by merely greatly reducing the cream, butter, and other fat-rich foods, and giving generous quantities of skimmed milk instead of whole milk. The ability to use skimmed milk may be of great aid in securing the improvement in general nutrition that is so important in many of these cases, while attempts to use whole milk are fruitless.

Regarding intestinal conditions, it is, I think, almost automatic with everyone to consider that fats may cause looseness of the bowels, and we all see instances, from infancy on to adult life, but particularly in early life, in which it is easy to control a mild constipation by using fats somewhat freely. A step farther on, we see cases in which a generous, or even a moderate, use of fats produces an undesirable looseness of the bowels, and in which the bowels become normal again, if the fats are restricted somewhat. This is particularly true of children. As with infants, it may not infrequently be observed with children, especially after an acute digestive upset, that a fair amount of fat, sometimes even the quantity present in whole milk, is not well borne and causes diarrhea, while skimmed milk is freely taken by such patients without any disturbance. Like vomiting, one not infrequently sees mild, persistent looseness of the bowels and sometimes more severe and more acute intestinal disturbance produced by unwisely plying children with cream, rich milk and butter. Similar conditions occur at times in adults. I have at times seen cases, as I suppose every one has, of persons that would quickly get loose movements after the free use of fats; and others that had chronic looseness of the bowels from ordinary amounts of fats, without suspecting the cause, and whose disturbance ceased upon reducing the fats. The stools in such cases are usually soft, copious, of a sticky consistency, often somewhat glistening, and microscopically they show a good deal of fat. Very striking and severe grades of this condition have been carefully studied and described by Salomon. While cases of such marked form as his are, as he says, very uncommon, I am sure that milder degrees are not so, and they have some importance, particularly because of the fact that the nature of the condition is frequently overlooked, while recognition of it may lead to ready control of the disturbance. Those cases, not very uncommon in adults or children, in which even moderate use of milk produces diarrhea, are, I think, most commonly of this order; that is, it is the fat in the milk that causes most of the trouble.

These instances in which even moderate quantities of fat produce looseness of the bowels are likely to have some evidence in their history of recent or old enteritis or enterocolitis, and they usually have in their stools abnormal amounts of mucus, ordinarily of the character that indicates that it has come from the small intestine. They generally require treatment of this condition, as well as regulation of the diet; but careful attention to the diet, and this frequently means decided reduction of the fatty elements, will often, if the food is kept of bland form, largely control their trouble.

While diarrhea is likely to suggest the thought of fat-indigestion, the contrary condition certainly does so much less frequently; yet it is perfectly well recognized that constipation is occasionally due to disturbed absorption of fats, the stools in such instances being usually pale, hard, dry, often brittle and frequently large, and the unabsorbed fat being present chiefly in the form of soap. This condition is entirely analogous to that insisted upon by Czerny and Keller as being very often seen in infants. It is a common condition in young children whose diet consists largely of milk; and it is not infrequently seen in older children or adults, especially when the diet contains much milk. It may often be overcome by reducing the amount of milk-fat in the diet, together with the addition of more laxative foods, much better than by simply adding the other food and continuing rich milk; or than by adding more cream, as is often erroneously done with the thought that the fat in the cream will act as a corrective.

This state of the stools when persistent, or one of similar character but with softer consistency and without the constipation, sometimes becomes associated with sallowness or pallor, flabbiness, and indefinite general ill health, and forms a part of that group of cases frequently described under the term acholia. I mention this fact merely in order to say what is, I am sure, largely superfluous, — that acholia is ordinarily not what its name implies: that it has usually nothing to do with lack of bile, and that while the color of the stool is often due to a change of the urobilin, the normal coloring-matter of the stools, into so-called leuko-urobilin (colorless urobilin), it is sometimes due to a mere excess of fat in the stools, usually in the form of soaps. If examination of the stools indicates this, or if a careful investigation of the diet shows that an excess of fat is being taken, restriction of the fats will frequently go far toward correcting the condition, or will entirely do so.

In this connection, I wish merely to mention conditions in which there is icterus, and in which bile is more or less completely absent from the intestine. Through the work of Friedrich Müller and others that have followed him it has become well established that fats are usually very badly absorbed in such cases. I have myself determined that as much as 85% of the amount ingested may pass unabsorbed; the figures mentioned having been obtained in a case that was definitely determined at operation to be simple obstructive icterus. I mention the conditions in icterus only because I think they constitute a clear instance of lack of utilization of fats; and, since this is true, a large part of the fat given undoubtedly merely burdens the digestive tract. These patients are usually put on a diet that consists largely of whole milk. I think they do better on milk that is partly or entirely skimmed, and this is certainly a more rational diet for them than whole milk.

There is another group of cases to which I said I would refer, of which I have seen a number of examples and which I have never seen described. I believe, however, that they exist, and that they have some clinical importance, although how common they are I am not yet prepared to say. Their chief interest lies in the fact that from my point of view, at least, the disturbed health exhibited by them is due largely to unrecognized difficulty in utilizing fats; and the lack of recognition of their nature depends chiefly upon the fact that they may exhibit no signs of fat-indigestion that can be determined by ordinary methods of clinical observation. They appear to me to be due to metabolic difficulty in making use of fats, although whether this is actually true or not, I cannot state, because ordinary methods of observation and of examination of the stools do not suffice to demonstrate or to exclude mild grades of trouble in the digestion or absorption of fats. The question can be decided only by accurate studies of absorption and metabolism; and these I have, as yet, been unable to make in any case, because the instances of this type that I have seen were in private patients, who could not be subjected to such studies. Hence, I cannot offer definite evidence that they were not due to disturbed fat-digestion.

So far as I know, there is in literature no clinical consideration of the possible existence of a deranged fat-metabolism, beyond the derangement that probably occurs in some cases of obesity and that which certainly sometimes occurs as a secondary matter, though a very important one, in conditions in which carbohydrate metabolism is greatly disordered; or, what amounts to the same thing, in cases in which the carbohydrate intake is much reduced — chiefly, that is, in diabetes. Some authors, indeed, indicate quite clearly that they consider that disturbance of health due to disordered fat-metabolism does not occur primarily, and is not seen unless the carbohydrate intake or the power of utilizing carbohydrate in the system is largely below normal. I cannot offer any convincing testimony that such disturbance does occur, but, as I have said, the cases that I am about to refer to appear to me to be probably instances of mild disturbance of this sort. It is, I think, wholly rational to consider that there may be such primary disorder or incapacity of fat-metabolism, just as protein and carbohydrate metabolism show limitations of varying degree in different individuals. I believe, indeed that the literature relating to acid-intoxication in diabetes and in other conditions indicates very strongly that the excessive formation of toxic products from fats, or the imperfect oxidation of such products, whichever may be the cause of acid-intoxication from fats — and not improbably it is both — may be due in some cases quite as much to actual disorder of the mechanism of fat-metabolism as to a hitch in carbohydrate-metabolism that merely involves the fat-metabolism secondarily. Certainly the degree of acid-intoxication in diabetes is by no means always in direct proportion to the degree of carbohydrate disturbance, and I do not believe that the Von Noorden school are correct in considering that acid intoxication is inevitably associated with marked reduction in carbohydrate intake. Indeed, I have seen marked cases that convinced me that this is not always true. However, even if I am correct in considering that the cases to which I am more particularly referring at present are instances of disorder of fat-metabolism rather than fat indigestion, they are not necessarily examples of ordinary acid intoxication and, therefore, do not necessarily depend upon the same factors as does ordinary acid-intoxication; and I would furthermore repeat the statement that I have not clearly shown that my cases were due to deranged metabolism, as distinguished from deranged digestion.

I shall describe an example of these cases. The number that I have seen is limited: five or, perhaps, a sixth, in children; and two or three probable cases in adults. They may, nevertheless, be more frequent than this would indicate, for I have seen them all within a comparatively short time, since my interest in the matter was first aroused.

A very trivial matter led to my first observation of this kind: One of my medical friends, who is not a practitioner, but is a very thoughtful observer, and investigator told me casually that, as a child, his breath was very offensive, and that, no other cause having been discovered, his mother had ultimately overcome the trouble empirically by taking cream and butter out of his diet, and giving him skimmed milk instead of whole milk. He tells me that, even yet, his breath becomes offensive if he takes much rich milk or cream.

Soon after this I had referred to me by Dr. John G. Clark, a boy of ten years who had been the rounds of various doctors in Philadelphia and abroad, chiefly pediatrists and throat specialists, because his breath was so offensive that his family, and especially his mother, who was devoted to him, but had very delicate susceptibilities, found it difficult to have him in intimate contact. In addition to this most apparent symptom he was thin and sallow looking, had dark rings under his eyes, was nervous and rather irritable, and tired easily. I made a very careful general examination and studied his urine, stools and blood, but found nothing abnormal except the general look of ill health and certain conditions of the urine that I shall mention. He had no digestive symptoms, and a very competent specialist had just found the nose and throat normal. The mother said that the chief advice that had been given her as to treatment had been to get him better nourished, and hence she had been having him take milk, cream and the like freely, though not immoderately, for three years. During this time she thought that the general condition had grown rather worse than better, he had gained no weight, and his breath had undoubtedly grown worse.

I attempted to demonstrate some evidence of intestinal putrefaction or fermentation not exhibited by the symptoms or the condition of the stools, and made estimations of the ethereal sulphates and volatile fatty acids of the urine and tested the urine for indican, and the destillate from the urine for phenol and acetone. I also estimated the total nitrogen and the ammonia nitrogen. The only abnormalities were a rather marked reaction for acetone, decidedly high volatile fatty acids (120 for twenty-four hours, expressed in terms of deci-normal NaOH, using Blumenthal's method), and possibly a somewhat high amount of ammonia for a child (0.650 gm. of ammonia nitrogen and 9.5 gm. of total nitrogen). These conditions were merely sufficient to emphasize slightly a suspicion that his difficulty was due to the fats of the diet, but they did not, of course, demonstrate it. However, I removed fat almost completely from his diet, gave him skimmed milk in generous amounts, replaced the fat by easily digested carbohydrates, and later, since he bore them well, gave him green vegetables freely. The only medication that I used was milk of magnesia, which I gave him temporarily because he had at first a little constipation and because I thought the alkali to be indicated.

The effect in this case was in most particulars exceedingly gratifying. I saw him, all told, for about two months. His breath rapidly grew sweeter, and after two weeks the mother said she rarely noticed anything wrong with it. All offensiveness later disappeared and has not, I think, returned up to the present time — a period of two years. He got a good color, became brisk and jolly, and seemed to be perfectly well, except that he did not gain in weight and remained of spare build. His condition, however, became, I was informed, better than since his early childhood.

The other cases of this class I need not detail, except for one that has since especially interested me. I would say, however, that the offensive breath that I have mentioned prominently in describing this first case has not been so noteworthy a feature of the others, although they have all exhibited it in some degree. It merely happened to be a prominant feature in the first case. The other symptoms were of the same order as in the case described; indefinite and not very characteristic evidences of lack of health, poor color, languor, frequent irritability and nervousness, and usually a rather thin build; and, — a fact of considerable importance in pointing out the source of the trouble — all were evidently, when their daily diet was investigated in detail, taking generous or immoderate quantities of fats. All, however, showed a lack of evidence of digestive disturbance or of abnormalities of the stools, upon ordinary clinical examination.

Besides the five or six such cases that I have seen in children I have observed in adults several that I think belong to this group, but they all had rather copious bowel movements and I had no opportunity to secure any definite evidence that their trouble was not attributable simply to disturbance of fat digestion.

The one further case that I wish to describe briefly is the one that I mentioned earlier in which there was definite recurrent vomiting. This patient was a girl of five who, since she was three years old, had had several times a year at irregular intervals, attacks of mild vomiting without known cause. She was the child of very intense parents, who belonged to neurotic families. The child was herself over-intense, and her attacks, from her history, seemed to bear a somewhat definite relation to overstrain. They were probably recurrent vomiting of the ordinary type but of a very mild grade.

About a month before I saw her, she had been put by her doctor on a very generous fat diet because she was under weight, of poor color and languid, and because her mother had told the doctor that she seemed to have difficulty in taking starches. Previously she had for several years been taking rich milk freely, and also considerable amounts of butter and cream and the increase in fat made actually a very heavy fat diet. Between two and three weeks after this increase in fats, and about a fortnight before I saw her, she developed a severe attack of vomiting, more severe than she had ever had before, lasting three days.

When I examined her, I found, except for the features of her general condition that I have already described, nothing of importance. The morning after my examination, about eight o'clock, the mother sent for me to see the child at once, as she appeared to be about to develop another attack, and it was desired that I should observe it; it had been noted that the child was heavy and very languid, had a peculiar odor to her breath, and refused most of her breakfast. She was already vomiting when I got there and had a decided acetone odor about her; and her urine, which the mother had happened to secure for me early that morning before the vomiting had begun, contained a good deal of acetone, diacetic acid and betaoxybutyric acid. This attack was fairly severe, and lasted three days. She had never before had attacks in such quick succession or of such severity.

The subsequent treatment that I used was almost entire exclusion of fats from the diet, substituting for them generous quantities of readily digestible carbohydrates, which she took without any difficulty, and very moderate doses of sodium citrate. She remained absolutely free from vomiting for a year. After three months, indeed, the mother, who lived at a distance, wrote me that the child was in better general health than she had ever been. After a year, largely upon the advice of her family physician, the mother began giving the child fats again, rather generously and rather abruptly. Whether as a consequence of this or not, a very violent attack appeared within two weeks and another severe attack, which lasted nearly a week, occurred soon after this. The diet was then changed again, fats being almost entirely excluded, and since then, in a period of eighteen months, she has has no distinct attack.

Several years ago I directed attention to the apparent relation between recurrent vomiting and acid intoxication. I attempted at that time to make it clear that I realized that acid intoxication is a secondary matter, in any circumstance, and that, consequently, control of the acid intoxication could not cure the primary disorder. I hoped, however, that if it could be shown that many cases of recurrent vomiting were associated with acid intoxication, as they appeared to me to be, direct treatment of the acid intoxication might greatly relieve the symptoms of this disorder, as it does in suitable cases of diabetes. I think I was undoubtedly too optimistic at that time, as many cases do not appear to have been greatly helped by large doses of alkali, but it has become clearly evident since then that most, if not all, of these cases do show decided evidences of an acid-intoxication that clearly stands in some direct relation with their disorder, and is not due merely to the inanition that is consequent upon prolonged vomiting and lack of food. I still believe that in some of these cases the acid intoxication is an important factor in producing the symptoms, and that treatment of it is rational, as it at least controls an evident abnormality, while the nature of the other abnormalities present is unknown. Indeed, at times, such treatment entirely overcomes the tendency to violent outbreaks. How frequently this is the case I do not know, but I have seen four cases, one of them excessively violent and rebellious, and all of them very severe, that have, I know, had no attacks since alkali treatment was first started — that is, a period, at present, of three to five years in the different cases.

Considering, then, the fact that acid intoxication does occur in these cases, and that control of this intoxication does at times seem to do decided good, and considering, also, the close relation known to exist between fatty foods and acid intoxication, it appears to me to be wise to determine carefully what the patient's diet is in regard to fats, to see to it that the amount of fats is kept low and, at the same time, to determine that generous quantities of carbohydrate of proper form are given. There is often, in these cases, a real or fancied difficulty in taking carbohydrate, and the amount of it is consequently quite frequently reduced to an abnormal and unwise extent. The case that I have cited is probably an instance of the importance of this, decidedly — the most striking instance that I have ever seen. It is by no means certain that the generous fat diet was productive of that child's attacks, but the course of her case does make it appear probable. At all events, it appears to me to be wholly possible that a diet much distorted from the normal such as is often given these patients, especially if the carbohydrate is much reduced and the fats coincidently much increased, may occasionally be largely responsible for the attacks, and I consider it highly probable that if there is a tendency to such attacks it may readily be exaggerated by pushing the fats in the diet of a person who is not capable of managing them easily, whether the result in such cases be acid intoxication or something else.

Recurrent vomiting, while much more common in children than in adults, occurs occasionally in adolescents and adults; at least, a condition seemingly identical or closely analogous with it is occasionally seen. The remarks that I have made concerning children apply to these similar cases in older persons.

In consideration of the limits that I have purposely placed upon the character of cases to be discussed in this communication I shall let what I have said suffice for the more direct clinical side of my remarks. I wish still, however, to lay some emphasis upon certain points regarding the methods of determining the degree to which a patient digests and absorbs fats — points that are not in any way essentially new and have been determined repeatedly by others, but that I have many times had occasion to see overlooked.

There is, I am sure, a tendency among clinicians to consider that a gross inspection of the feces, which frequently means inspection of only portions of one or more stools, combined with a microscopic examination and some easy qualitative chemical tests, furnishes fairly accurate and reliable knowledge regarding fat digestion and absorption. It is quite true that information may be gained in this way, and that at times, especially in cases with very severe disturbance, the information may be of great clinical value; but it is equally, indeed still more, true that in order that any conclusion reached may even approximate to correctness, certain other matters, chiefly the amount of fat that is being ingested and the copiousness of the bowel movements, must be taken into consideration in most instances.

At one time it was a common custom to make a rough estimation of the percentage of urea in a small specimen of urine, and to reach a conclusion therefrom as to the patient's powers of eliminating nitrogenous end products. Certainly most skilful clinicians have wholly abandoned this practice. It has become apparent that, aside from more complex and more technical reasons, any such method is utterly worthless unless one can, with considerable accuracy, determine the whole amount excreted in twenty-four hours and also the amount of nitrogenous food ingested; and can contrast these two with each other, and thereby determine whether some of the intake fails to appear in the excretion.

The same principle applies to examination of the stools for fat. Unfortunately, there is no direct and ready clinical method of determining, in most cases, with even approximate accuracy, the actual extent to which fats are digested and absorbed; and one is obliged, in the vast majority of instances, to deduce conclusions from a combination of observations of different sorts. If one desires to avoid gross error, one must go at least so far as to make a rough comparison of the intake with the excretion. In order to do this, one must determine in somewhat careful detail the character of the diet and the amount of the fat-containing foods that have been taken, and, on the other hand, one must learn how large a bulk of feces is passed within a given period. If, when this is done, examination of the stools by the ordinary methods shows that they contain only a small amount of fat, while the patient's diet contains a normal quantity, it is proper, of course, to decide that there is no serious abnormality of fat absorption. On the other hand, if large amounts of fats are passed in the stools, and the diet is not over rich in fats, it is reasonable to assume that there is poor absorption. In most cases, one cannot, when using ordinary methods, make more emphatic or more specific assertions than these, as to the extent of fat digestion and absorption.

This is not always absolutely true. In rare instances, for example, one may see large quantities of liquid fat in copious bowel movements, and in such cases one is justified from mere inspection in deciding that there is very severe reduction of fat digestion and absorption, and even in suspecting strongly that grave pancreatic disease is present. Unless, however, such manifestly serious conditions indicate that there is unquestionably severe disease present, or unless, on the other hand, there is evidently very little fat left when considerable quantities are known to have been taken, one must be guarded in one's conclusions and must at least make a careful attempt to determine whether an apparently good absorption is not due to taking very little fat, or whether a seemingly bad absorption is not the result merely of overburdening the digestive tract with immoderate amounts. And although the amount ingested be known, even, indeed, if a test diet, such as that of Schmidt and Strassburger, is used, one must go further, and take into account the bulk of the bowel movements in one, or, better, in several definite periods, or one may still fall into error. It is easy when the total bulk of the feces is very small to be deceived into thinking that a large *relative* amount of fat means a large *absolute* amount, and grossly wrong conclusions may be reached by overlooking this point.

A case that I have recently studied will illustrate this: The details essential to my present purpose are that the patient, a woman of forty-seven years, was admitted to the private ward of the University Hospital under the care of Dr. Frazier, with a diagnosis of chronic appendicitis. She presented no signs of appendicitis but had had digestive symptoms and loss of weight for several months, and an examination of her feces by a man exceptionally skilled in this work had shown that they seemed to be composed almost entirely of fats and soaps. In the absence of jaundice, this led to a strong suspicion that the patient had either severe pancreatic disease or extensive and grave disease of the intestine, probably the former. Her digestion of albumin was, however, apparently good. In order to determine the severity of the disturbance of fat absorption, I estimated the total intake of fats throughout three days, and marked off the feces of this period with carmine. I then estimated the amount of fat and soaps in the feces, after drying and pulverizing, by means of extraction in the Soxhlet apparatus, the soaps having been converted into fatty acids by heating with acid alcohol.

She took during this time 142.24 gm. of fat and passed in the feces 17.12 gm. of fat, including soaps. She had, then, rather poor absorption, but it was very much better than was indicated by the qualitative examination. Her feces were, as had been reported, composed in very large part (66.6%) of fat and soaps, but the total amount of feces — only 25.67 gm. of dry residue in three days — was so extremely small that the high relative amount of fat that they contained became of very much less importance than it had seemed to be, and really indicated only an extremely moderate grade of disturbance of absorption (only 12% of the intake having been passed in the feces), instead of the very severe grade that had been thought at first to be present. The condition of the stools became, thereby, entirely compatible with a moderate grade of chronic enteritis — a diagnosis that the other circumstances in the case and the effect of treatment made by all means the most probable.

In addition to the precautions that I have already recommended, one should, before drawing important conclusions from an examination of the feces, know something of the rapidity of peristalsis; and one must sometimes interpret findings, both as to the amount and as to the character of the fat in the feces, directly in accordance with this. Brugsch, for example, has carefully studied a case that was clearly a neurotic disturbance with precipitate peristalsis, and he found very pronounced disturbance of fat absorption, over 40%, even, of the ingested fat having been passed unabsorbed. In his case, the fats were well split; but in some cases of hurried peristalsis, whether due to neurosis or to other causes, there seems to be insufficient time for the splitting — possibly, also, disturbed ferment action. Some persons, for example, are mildly purged by olive oil or other oily fats, the oil in some of these instances, and possibly in all, seeming to act merely as a mild irritant or as a lubricant, and the contents of the intestine are at times very quickly passed along in such cases, and noteworthy amounts of the oil may appear in the feces unchanged, and even in liquid form. This is of importance in relation to the fact that it is commonly considered that the presence in the feces of any considerable amount of neutral fat, especially in liquid form, is strongly suggestive of severe disease, more particularly of the pancreas. When very considerable amounts are present, this is almost always a correct tentative conclusion, provided that unduly large quantities have not been taken in the food; but unless the abnormality is exceedingly striking, one should not draw hasty conclusions until one has determined that it is not the result merely of hurried peristalsis.

If the question be looked at in the manner that I have indicated, I think that one can determine extremes with a reasonable degree of accuracy; that is, one can in some cases learn that fat splitting and absorption are apparently very good, and in some others that they seem to be very bad. Even when the disturbance is only moderately severe, one can reach a fairly accurate conclusion. In the numerous cases, however, in which the percentage of splitting or absorption of fat is neither very bad nor very good, examination of the feces is an uncertain and unreliable guide, when done by ordinary methods; and it is particularly so, unless combined with careful consideration of the clinical features of

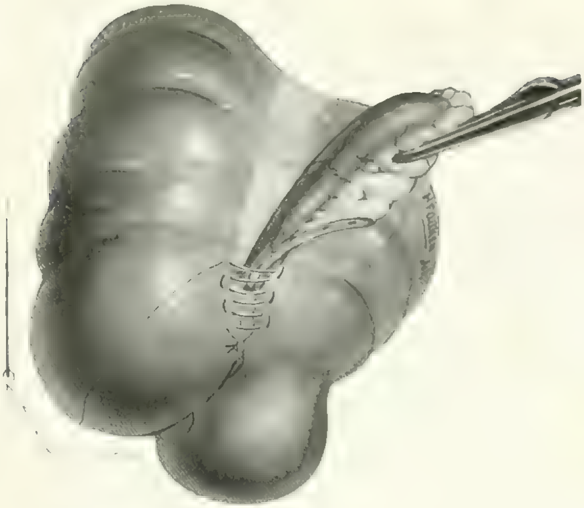

FIG. 1.

Shows the first three or four right and left sutures for inversion and infolding of the appendicular stump.

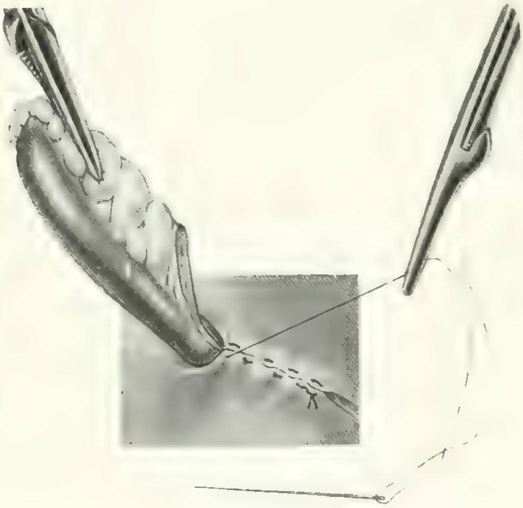

FIG. 2.

Shows the base of the appendix partly buried, yet on gentle traction of the appendix and relaxation of the suture it emerges sufficiently to facilitate amputation at its junction with the cecum.

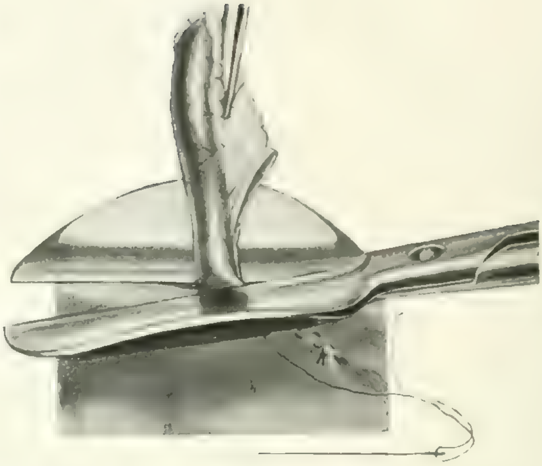

FIG. 3.

Represents gentle traction upon the appendix and amputation with appendix scissors.

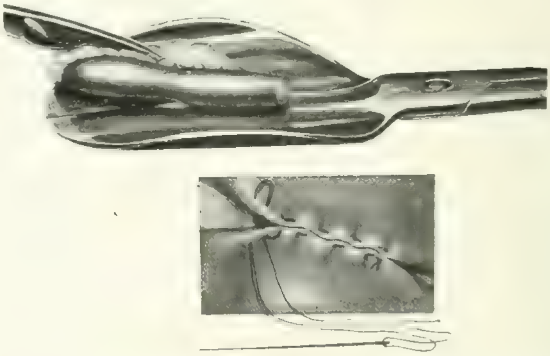

FIG. 4.

This cut represents the appendix lying in the concavity of the appendix scissors. The stump has spontaneously inverted. Two or three more right and left passes of the suture completes the operation.

the case, together with detailed inquiry concerning the habitual diet, the bulk of the feces, and, in suitable cases, a trial of the effect of altering the amount of fat taken. Accurate determination of the fat ingested, and of the amount split and absorbed, is the only method of furnishing definite knowledge in most cases, and this is, of course, so tedious and burdensome a measure that it is impossible to use it in ordinary clinical work.

This is naturally very unfortunate in many instances, particularly in cases in which graver clinical questions than most of those that I have considered arise. It is especially unfortunate in cases suspected of pancreatic disease, for while in such cases it is occasionally possible to reach very important conclusions by means of simple methods of studying the feces, in a large proportion of instances these methods do not give any definite aid; but on the other hand, the work of Friedrich Müller, Deucher, Ury and Alexander and Brugsch has shown that careful studies of digestion and absorption, although they not infrequently leave the question wholly unsettled, often do throw the weight of evidence largely upon one side or the other.

Nevertheless, in the group of cases that I have especially referred to in this paper, in which, to be sure, the disorder of fat indigestion and absorption is not usually severe and in which, therefore, ordinary examination of the feces is likely to give at best extremely approximate results, it is, as a rule, less important than in pancreatic and other severe cases to determine the actual degree of fat splitting and absorption. It would frequently be very useful for purposes of prognosis and of accurate diagnosis, but the main purpose in these milder cases is accomplished if one reaches a clinical conclusion that is sufficiently accurate to point out clearly — or, at least, to suggest — that the fats should be restricted; whether the symptoms in the case be due merely to a rebellious stomach, to poor digestion of fats in the intestines or to the patient's simply overburdening himself with undue quantities of fat in his diet.

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A SIMPLE METHOD OF TREATING THE APPENDICULAR STUMP.

BY HORACE PACKARD, M.D., BOSTON, MASS.,
Professor of Surgery, Boston University.

At the outset the writer wishes to distinctly state that the method herein set forth applies to appendicular stumps, the tissues of which are in a normal or an approximately normal condition. It is therefore applicable to nearly all cases of interval appendectomies and all cases of acute appendicitis when the inflammatory changes have not involved the tissues of the cecum about the base of the appendix.

The method was devised and has been used for the purpose of reducing to the minimum the danger of infection of the abdominal wound from the appendicular stump and to simplify the technique of appendectomy.

In the present era of appendicular surgery, a very large percentage of appendectomies are in cases where the appendix is still unruptured; therefore, if, in the process of healing, suppuration appear in the wound and culture examination show it to be from colon bacillus infection, such must be accepted as proof that the method of dealing with the appendicular stump was defective. In other words the method was such as permitted material to escape from the appendicular stump and become smeared upon the freshly cut tissues of the abdominal wound. That this is a real danger needs no argument. In the prevailing method, of ligating the base of the appendix, amputating it and touching the exposed mucous membrane with the thermocautery, the pathway is open for conveying infection to the surrounding tissues.

Furthermore, such a method of dealing with the part is surgically a shiftless one, because ligation *en masse* approximates mucous surfaces for amalgamation, which we know does not readily take place, and, moreover, an appreciable amount of tissue is strangulated which would in the natural course of events undergo retrograde changes. Surrounding the base of the appendix with a pursestring suture and inversion before tying, is a much better mechanical arrangement of the parts but considerable manipulation in the way of preliminary dilatation of the opening, before inversion can be easily accomplished, is usually necessary, and the process affords opportunity for escape of liquid feces and gas. Therefore this method is open to more serious objection than the former. The method recently exploited, of crushing the tissues of the base of the appendix à la Doyen and then cauterizing, is open to the objection that it lacks simplicity, calling for two special instruments,— a crusher and a thermocautery.

Any and all of these methods in the hands of a skillful and careful surgeon, surrounded by the safeguards of a well-organized hospital clinique, yield good results, but for simplicity of technique and reliability, the writer has found nothing equalling the method herein described.

DETAILS OF METHOD.

After the appendix has been exposed and brought into the field of operation as far as circumstances will permit, the meso-appendix is ligated and divided in the usual way. An intestinal needle with fine silk, or Pagenstecher thread, is passed through the cecal coats on the meso side of the appendix, including the edges of the peritoneum which have been severed in the cutting away of the meso appendix. The needle then takes up a dip of peritoneum just outside the mesenteric wound, skips over to the other side, takes up a corresponding dip and is tied. This constitutes the first step in the suturing, the remainder being a continuation of the same in the form of a right and left continuous suture, applied in such a way as to gradually embrace the circumference of the base of the appendix and at the same time bury it. (See Fig. 1.) After two or three passes of the needle, right and left, the appendix will be found to have assumed somewhat of an upward turn, *i.e.*, if left to its own inclination it will spontaneously turn upward along the longitudinal band of the cecum. (See Fig. 2.) Seizing it with forceps and pulling gently, its base, or nearly the whole of the circumference of its base, emerges from the infolding portion of the cecal peritoneum which the suture has gathered up about it. (See Fig. 2.)

The next step is the amputation of the appendix, which is done as follows: The tip of the appendix is seized with a pair of forceps and traction is exerted sufficiently to put the part well on the stretch. With a pair of scissors the appendix is cut short off at the base. (See Fig. 3.) If the suture has been correctly adjusted, the stump, or circumference of the opening resulting from the amputation, disappears at once — is buried. Two or three dips more of the needle in the same right and left manner completes the suturing, and the operation is done so far as relates to the appendix. Any form of scissors will suffice for the amputation, but the writer has found specially made ones with broad dishing blades, safer, in that the appendix, immediately on being severed may be dropped into them (see Fig. 4), and the whole — appendix, scissors and all — taken away from the operating-table by the nurse.

In closing, the writer begs to submit that he has used this method of appendicular stump treatment in over 100 cases without a known instance of colon bacilli infection. In fact, it is so rare that pus has appeared in the abdominal wound that the question of source of infection has scarcely arisen.

Such rare instances as have occurred of bacterial infection have invariably shown, on culture test, to be from other origin.

The advantages of the method are as follows:

1. It is simple.
2. No thermocautery, nor carbolic acid nor other antiseptic is required to sterilize the stump.
3. The stump is practically closed before the appendix is cut away.
4. No special instruments are required other than those provided in any ordinary surgical operation.
5. No circular suture nor inversion of the stump is required, — it inverts itself.
6. One line of suture only is necessary.
7. More than 100 cases have been operated upon by this method without the slightest evidence in any case of imperfect closure of the stump or of infection of the abdominal wound from colon bacilli infection.

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The South Mountain Sanitarium for indigent tuberculous patients, situated in Franklin County, Pa., in the State Forestry Reservation, has just completed its third year of existence. At the annual meeting of the Pennsylvania Forestry Association, held on Monday, Dec. 10, the officers of the sanitarium stated that it was one of the best natural sanitariums in the world. —*New York Medical Journal.*

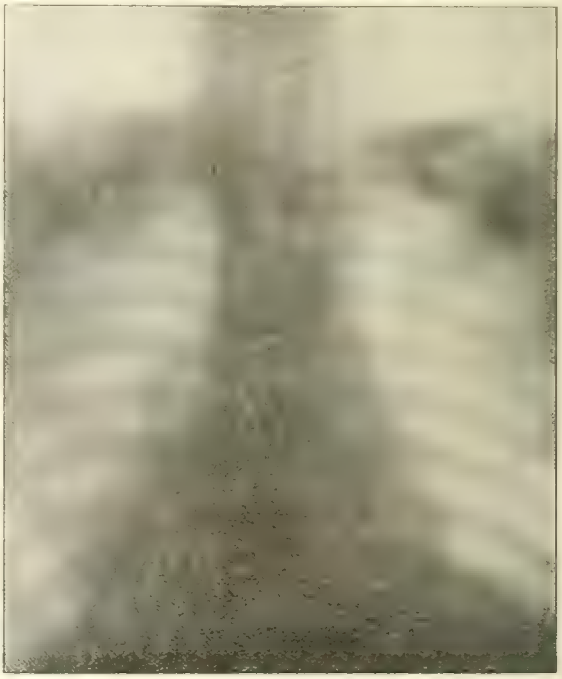
Clinical Department.

REMOVAL OF FOREIGN BODY FROM ESOPHAGUS, SEVEN WEEKS AFTER LODGMENT, WITH AID OF X-RAY WITHOUT OPERATION.[1]

BY DAVID D. SCANNELL, M.D.,
Assistant Visiting Surgeon, Boston City Hospital.

This case is of considerable interest because of (1) length of time elapsing between lodgment and removal; (2) comparative freedom from obstruction; (3) absence of pain, and (4) emphasis on the value of the employment of the common methods before resort to operation.

The patient, a child of seven, was brought to the surgical Out-Patient of the Boston City Hospital, having seven weeks before, swallowed the shuttle of a sewing machine (a circular piece of metal, five-eighths inch in diameter, and one-fourth inch thick, with a central perforation one-fourth inch in diameter); immediate choking sensation and cough of only brief duration; subsequently, difficulty in the attempted ingestion of solid food only, vomiting, pain in chest and epigastric cramp occurring. Semi-solids and fluids taken with ease. Brought to the hospital simply because parents had not noticed shuttle in stools, and not because of above symptoms. Examination by means of x-ray revealed shuttle at level of fifth rib and eight or nine inches from labial orifice (Fig.). While doubting the likelihood of success in removing by the simpler method so large a body in so small a person after so many weeks, we decided to attempt it, nevertheless, with the aid of the fluoroscope. The procedure was carried on in a dark room, with no light other than that of the tube. The child was not etherized, a fact which added to the difficulty. A whale-bone coin-catcher was passed twice, but without success; no metallic contact noted; the fluoroscope showed no change in the position of the foreign body. An adult-sized bristle



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[1] Case shown at meeting of Boston City Hospital Clinical Club, April 12, 1906

probang was then employed with no more apparent success. The fluoroscope, however, showed the shuttle to have dropped into the stomach where it could be seen resting on the greater curvature at the cardiac end. Thirty-six hours later, it was passed by rectum without trouble.

◆

AN UNUSUAL CASE OF CEREBRAL ABSCESS.

BY THEODORE C. BEEBE, JR., M.D.,

Instructor in Surgery, Tufts College Medical School; Assistant Surgeon to the Boston Dispensary, Boston.

Marion C., nine years old, was first seen by me on May 8, 1906.

Family history: Negative. *Past history:* Has had diphtheria, measles, mumps, bronchitis and whooping-cough, from all of which she made a good recovery.

Present illness: In March, 1906, she began to complain of frontal headache coming on during school-hours, nearly every day. About the same time she developed a persistent cough with blood streaked sputum, and said that her arms and legs were tired. The child's teacher said that her speech seemed to be getting thicker and the voice becoming hoarse. She was taken to the Boston Dispensary where she was treated as a case of pulmonary tuberculosis for three weeks. During this time the cough was getting progressively worse, and the amount of blood in the sputum increased.

Physical examination: When seen on May 8, she was well developed and fairly nourished. Face, lips and conjunctivæ very pale. Tongue pale and coated. Says she feels weak. Heart shows a soft systolic murmur at the apex, possibly hemic in origin. Careful examination of the lungs showed no signs of consolidation, but a few scattered fine râles. Temperature normal, and pulse 104. Examination otherwise negative.

The child was given a cough mixture which relieved her temporarily. Two days later had a sudden pulmonary hemorrhage of about eight ounces, followed the same night by another of about the same amount. When I saw her on the following day she was extremely pale, prostrated, with marked dsypnea, and pulse rate of 172 per minute. Under treatment of morphine and an ice-bag to the chest for several days the condition began to improve. During this time repeated examinations of the sputa showed no tubercle bacilli. In the course of the next three weeks she had several hemorrhages of varying amounts. Her condition was now one of great weakness from the continued loss of blood and impaired appetite. Several examinations of the lungs at this time failed to show the usual signs of pulmonary tuberculosis. On May 15, her right arm and hand became totally paralyzed. This condition lasted about two weeks and was followed by almost complete recovery, only a slight inability to grasp remaining. During the month of June the patient's general condition began to improve. She was still pale, but the hemorrhages had ceased, the cough was lessened, and the sputum was only occasionally streaked with blood. The headaches were of only occasional occurrence. Early in July she developed internal strabismus of the right eye, with apparently a slight exophthalmus of both eyes. Her general condition was again getting bad, and she spent most of her time in bed. The cough and bloody sputum again appeared, but examination of the chest and sputum were still negative. During all this time there was no fever.

About Aug. 1, there appeared ptosis of the right upper eyelid. She now went to the Channing Home where she made a rapid improvement for a few days. She was up and about and ate heartily. On Aug. 5, she was taken with nausea, vomiting, frontal headache and occasional clonic spasms of both arms and legs. The right arm again became paralyzed, and the right leg felt weak, she said. She was taken home that night by her parents and was seen by me on the following day. The mother said the child had had five convulsions in the past two weeks, but it seemed, on questioning, that these were nervous twitchings of the extremities rather than general convulsions. The case was seen by Dr. T. F. Leen with me, at which time the condition was as follows: Pupils equal, and react to light and distance. Some exophthalmus, more marked on right side, where there is also some ptosis of upper eyelid. Tongue protrudes in median line, slightly coated. Pulses slightly irregular, good volume and tension, and rate of 88 per minute. Temperature 99°. Right side of face shows paralysis, not complete, however. Neck can be bent forward but there is some pain on motion and on pressure. Heart shows faint systolic murmur at apex. Lungs and abdomen negative. Tache cérébrale present. Very slight response to pin-pricks on right arm and leg. Knee-jerks present on left, slight on right. Both Kernig's and Babinski's signs on right side. Paresis of muscles of right leg, and flaccid paralysis of right arm and hand. The diagnosis seemed to lie between a cerebral tumor, possibly secondary to a new growth in the lung, a solitary tubercle of the brain, and a tuberculous meningitis. She was sent to the Boston City Hospital, Aug. 7, 1906, where she was admitted to the service of Dr. John N. Coolidge, to whom I am indebted for the privilege of reporting the case, and for the subsequent notes on her condition.

Aug. 8: Eye examination: Fundi show a choked disc in the left, and a venous hemorrhage in the right. She was bright and rational up to noon of this day. General condition same as at entrance. Leucocyte count 12,500. During the day she walked without assistance, showing paresis of the right leg, toeing inward and dragging the right foot. Toward evening she became restless, but with no delirium. About midnight she had a convulsion lasting two or three minutes, a clonic spasm of the whole sight side and both extremities. She became unconscious, but had no further convulsions. There were slight twitchings of both arms, legs and face occurring until death. There was no spasm of the neck nor opisthotonus. She never regained consciousness, but moaned and was very restless. Pulse slow and full. Immediately before death the respirations were deep and gasping. The patient died at 3.20 A.M., Aug. 9, 1906. Autopsy: I am greatly indebted to Drs. Orton and Robertson of the Pathological Laboratory of the Boston City Hospital for the following report of the autopsy findings:

Marion C. Boston City Hospital, April, 1906. 151.

Right lung normal. Left lung shows in the meso portion of its lower lobe an irregular oblong firm mass, showing as a grayish white, firm material on section and surrounding a bronchus in which is a rusty enameled headed pin about 4 cm. in length. The head of the pin lies downward in the bronchus. No point of origin of a hemorrhage is demonstrable.

Brain: Hemisphere of cerebrum is sectioned on the plane parallel to base. Within the white matter of left hemisphere is embedded a perfectly circumscribed cavity circular in shape and 2.5 cm. in diameter. The lining wall of this cavity is firm in consistence, gelatinous in appearance and measures 3 mm. in thickness. Cavity is completely filled with sticky greenish purulent fluid.

Measurements from center of cavity to outer surface of hemisphere:

From mesial surface 3 cm. From point directly opposite on parietal surface 1.5 cm. From vertex 2.5 cm. From frontal pole 6 cm. From occipital pole 8 cm. From deepest convolution 1 cm.

The white matter immediately surrounding this cavity is slightly softened in consistence. Right cerebral hemisphere normal.

Microscopic examination: The tissue in which the pin is embedded is firm fibrous tissue containing numerous phagocytic cells filled with brownish pigment. Numerous similar phagocytes are present in the bronchial lymph nodes. No evidence of tuberculosis anywhere in body.

Brain: Abscess wall fairly thick and shows many leucocytes and organisms, chiefly cocci, in short chains and pairs.

When the mother was told that a pin had been found in the lung, she was much astonished. After a moment, however, she remarked that she remembered that six years previously the child had swallowed a round headed, black enameled pin corresponding in appearance to that found in the bronchus. As she had been told by her doctor that the pin would probably do no further harm, the incident had entirely passed from her mind. She was positive that there had been no cough or bloody sputum following the swallowing of the pin, nor had there been any bloody sputum at the time of the attack of bronchitis, two years ago.

The persistence of a foreign body in a bronchus for six years without apparent symptoms is a rather remarkable event in itself. Since Gustav Killian, of Freiburg, in 1897, began his work on foreign bodies in the bronchi, there has been a large amount of literature written on the subject. Metastatic abscesses from foreign bodies in the bronchi have been found in nearly every organ of the body, but, after careful search of the literature, I have been able to find no case of cerebral abscess from such a source.

That the abscess in this case was secondary to the presence of the pin in the bronchus, there can hardly be any question. Neither can there be any doubt but that the pulmonary hemorrhages came from this source.

It may not be out of place to repeat here the conclusion announced by Killian, that in every case of pulmonary hemorrhage, where there is no evidence of tuberculosis, a foreign body in a bronchus should be sought for as the cause. Usually there is a more or less definite history of swallowing or inhaling a foreign body, but in this case there was none. The paralysis of the right arm occurring in the middle of May, and practically disappearing in two weeks, offers an interesting point for speculation. It may have been due to an anemic infarct in the brain following the hemorrhages, or to an edema surrounding an embolus. The paralysis on the right side, both face and body, was due to the fact that the abscess was a central one.

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It is announced that a chair of comparative pathology has been established at the University of Liverpool and that Dr. H. E. Annett has been appointed its first incumbent.

Professor Annett has been connected with the Liverpool School of Tropical Medicine.

Medical Progress.

RECENT PROGRESS IN DIABETES.

BY ELLIOTT P. JOSLIN, M.D., AND HARRY W. GOODALL, M.D., BOSTON.

(Concluded from No. 25, p. 748.)

SECRETIN.

MOHR, Edie and Abram[76] have treated diabetes with the acid extract of the duodenal mucous membrane, and though their hypotheses do not rest on solid ground, the work is stimulating. Since the external secretion of the pancreas is increased by secretin, they infer that the internal secretion which regulates the carbohydrate metabolism would be similarly affected. Three cases were studied, and the authors believe that two were affected favorably, but Burgsch who reviews their article[77] believes the improvement due wholly to diet.

Bainbridge and Beddard[78] have reported the above experiments with secretin on three severe diabetics but with no decrease in the excretion of sugar. They then extracted immediately after death the duodenal mucous membrane of diabetics and others according to Baylias and Starling's method for obtaining secretin and tested the action of the extract in the usual way. The extract from the duodenal mucous membranes of corpses non-diabetic was able to stimulate the secretion of pancreatic juice while the extract of only one of six corpses of severe diabetes could be considered normal and in three was totally absent. Whether the secretin was absent in life is not proven, and it may be that the lack of it was due to the prolonged acid intoxication. Further experiments in this direction will be watched with interest.

USE OF ALCOHOL IN LESSENING THE ACIDOSIS.

Various substances (xylose, manite, glycerin, gluconic acid and sucric acid) which are similar to the carbohydrates, have been employed to lessen the acidosis of diabetes. Gluconic acid has alone produced good results, but this is not available on account of its high price. Neubauer[79] tested the action of alcohol in seven cases of diabetes in diminishing the acetone. His results differ from the earlier experiments of Hirschfeld, and while in a healthy person on a carbohydrate free diet alcohol was without influence in all respects, and in a slight diabetic acidosis was also transitory and uncertain in its action, in severe diabetic acidosis it was of very considerable influence. It should, however, be mentioned that Neubauer was only sure of the anti-acetone action when a diminution of the excreted sugar took place simultaneously; in other words, it would appear that through the better consumption of sugar the acetone is diminished. Therapeutically, therefore, alcohol is indicated in severe diabetes with acidosis, not only for the above reasons, but also for its nutritive value. The alcohol was given for two days in the form of wine, in an amount from 0.7 to 1.4 liters, corresponding to 65 to 135 gm. of alcohol a day.

The patients were kept on a constant diet for a period of two or three days before, after and during the experiment. The simplest explanation, according to Neubauer, is that the alcohol in its energy-producing capacity prevented the decomposition of fat, and, therefore, diminished the formation of the pathological end products of fat metabolism. This would not explain why the alcohol should not exert this same action with healthy persons on a carbohydrate diet. The fact that the alcohol lowered the acidosis only when the glycosuria was likewise lowered, makes one think that its action was secondary, and by furthering the oxidation of sugar thus diminished the acetone bodies. This would explain why not all cases of diabetes react in the same manner.

DIATETIC TREATMENT.

The general dietetic treatment of diabetes remains the same. Fat should be given in liberal amount, and by no means be restricted on account of the presence of acetone and di-acetic acid, according to Lenné,[80] Magnus Levy[81] and most other writers, but Pollartschek reports a case of diabetes of twelve years' duration in which restriction of the fat, especially butter fat, was followed by marked decrease of acetonuria. Albumin should be restricted according to Lüthje[82] to the equivalent of 500 gm. cooked (700 gm. raw) meat. Kolisch[82] especially emphasizes the importance of allowing only small quantities of albumin. Carbohydrates should be diminished until the urine becomes sugar free, or symptoms of acid poisoning become manifest, unless on the restricted diet serious loss of weight and digestive disturbances supervene. One is not making headway against the progress of the disease when sugar is allowed to remain in the urine. Lüthje[82] has observed that when the urine is sugar free on a diet containing 80 gm. of bread, but contains sugar with 90 gm., it is possible to still keep the urine sugar free if to 80 gm. of bread 20 or 40 gm. of potato, or 20 gm. of oatmeal, or 200 gm. of milk are added.

OATMEAL CURE.

The Von Noorden oatmeal cure[83] consists of 250 gm. of oatmeal, which is cooked with 300 gm. of butter and water into a soup, to which 100 gm. of Roborat, consisting of 80% albumin, are added. This is fed to the patients in the form of soup every two or three hours. The patients, therefore, obtain 2,500 calories in the form of fat, and about 400 calories in the form of albumin, which is sufficient to protect the body albumin, and adequate for a diabetic weighing 80 kg., even though he excretes 50 to 100 gm. sugar a day. Diabetic patients put upon this diet, therefore, receive, in addition to a perfectly adequate diet, a large amount of carbohydrate. Experience shows that severe diabetics are unable to assimilate carbohydrates, but excrete the same in the urine, while temporarily with the increase of glycosuria the acidosis may fall. Since Von Noorden's conception would lead to the conclusion that the starch of oatmeal acts specifically otherwise in the metabolism than all other hexoses, before accepting this hypothesis Lipetz[84] believed sources of error should be sought.

One possibility is that patients do not absorb the carbohydrates at all, or very badly, and simply live from the fat and albumin. Lipetz therefore studied the dried stools of patients on ordinary hospital diet and on Von Noorden's oatmeal cure, but they showed no lack of absorption. Another possibility is that increased fermentation takes place in the intestine, leaving no sugar as such to be absorbed. Two explanations are, therefore, to be considered: either the carbohydrates are in the most part quickly absorbed, as a result of which sugar will appear in the urine, with no increase in the amount of fermentation as shown by the bacteria in the feces, or there will occur a very marked increase in fermentation with increased amounts of fecal bacteria, but no increase of glycosuria. Lipetz studied this question first on a patient convalescent from rheumatism, but without diabetes. He found that the amount of bacteria increased in the period of the oatmeal diet from 9.82 gm. up to 14.57 gm. In a second experiment on the same person the increase of bacteria was about 40%, while the weight fell from 55.1 kg. to 54.4 kg. The oatmeal diet was then given to a severe case of diabetes. As a result the quantity of sugar excreted markedly increased during the oatmeal period as compared with preceding and following periods. As expected, no increase took place in the bacteria of the stools. The patient died a few days later from coma, but this was probably not related to the diet, but rather to the fact that bicarbonate of soda was not given in the usual quantities. In another case of diabetes of moderate severity the patient on the oatmeal diet showed an increase of only 10 gm. of carbohydrates, which would suggest that the carbohydrates of the oatmeal were only to the slightest part absorbed, but in great part fermented. This view was confirmed by the marked increase in the amount of bacteria in the stools. Before the oatmeal diet was given, the total quantity of sugar in the urine had fallen from 144 to 7 gm. During the oatmeal period the urine became almost entirely sugar free, but the sugar reappeared as soon as there was a return to the ordinary diet. The oatmeal diet was again given to the patient, but this time the excretion of sugar increased. Several other patients either vomited after taking the oatmeal diet for some days, or refused it. The good results which others appear to have obtained with the oatmeal cure appear, therefore, to be due to the fact that the carbohydrates are little, or not at all, absorbed. Whether the products of fermentation which were absorbed exercise any specific action is unknown.

In the discussion of an excellent paper by Langstein[85] on diabetes in childhood, various opinions of Von Noorden's oatmeal cure were expressed. Langstein and Mohr[86] had obtained successful results from its employment, while Kirschfeld's experience was variable, and Magnus-Levy's unfavorable. This latter opinion is shared by Archipow.[87] Van Noorden, however, has again strongly recommended it,[88] and Lauritzen [89] speaks in its favor. Lüthje [89] says the oatmeal cure satisfies a longing even if the carbohydrates are not absorbed. It is generally agreed that this form of treatment is applicable only to the severest cases.

INFLUENCE OF SURROUNDING TEMPERATURE.

Lüthje [90] has observed a marked influence due to the surrounding temperature upon the extent of sugar excretion of dogs, and, to a lesser extent, in patients. This is not dependent upon the nitrogenous excretion, because the latter does not alter with the sugar. The explanation is still unproven, but apparently it is related to the heat economy of the body, and perhaps fits in with Rubner's idea of the specific thermic importance of albumin. According to Rubner albumin breaks up into a nitrogenous portion and a non-nitrogenous carbohydrate body. The warmth set free by this decomposition works only in a thermic way, and is not transferable into other forms of energy in the body. It is concerned essentially with the maintenance of body warmth within those temperatures in which chemical regulation takes place. Lüthje shows that with increasing cold there is always a greater splitting off of carbohydrates, which with diabetic dogs is manifest by the appearance of the excretion of sugar. As there is simultaneously no increase in the nitrogenous excretion apparently the nitrogenous part of the albumin molecule is not oxidized but retained in the body. The necessary sources of heat also must therefore come from the breaking up process of the albumin molecule rather than from the oxidation of the same, because, first, no increased nitrogen is excreted, and second, the carbohydrate moiety is excreted unoxidized. Brasch [91] has repeated Lüthje's experiments on phloridzin dogs. In one dog temperature had no effect, but in another there was a slight increase of sugar in the cold. He considers that temperature does not act in severe phloridzin diabetes, but only after total pancreatic extirpation.

DRUGS.

Fleischer [92] gives a most excellent summary of the acton of drugs in diabetes and arrives at the conclusion that opium is the only relative sure remedy, but that this is not specific. He carefully considers the literature of opium, potassium bromide, corrosive sublimate, sodium salicylate, aspirin, salol, antipyrin, piperazin, quinine, arsenic, iodine, iodoform, diastase, beer, yeast, liver extract, pancreatic preparations, alkalies, calcium phosphate and calcium carbonate, ammonia, uranium salts, myrtle, syzygium jambolanum, antimellin, which is identical with djoëatin and jambulin, saccharosalvol and glykosoral.

PROGNOSIS.

The prognosis is good, and no shortening of life need be expected at sixty years of age and perhaps at fifty, if the tolerance for carbohydrates does not diminish. Even at thirty the patient may live for tens of years, but this is not so sure. Consider the duration of the case already and the duration of treatment; watch for nephritic and arteriosclerotic complications. Nephritis with diabetes is worse than nephritis alone. Sugar in the blood favors arteriosclerosis. Remember that there is always a greater tendency for young than for old diabetics to get worse. Poverty is a very unfavorable factor. The hereditary type is milder, perhaps due to the earlier beginning of treatment, but complications in heart and vessels appear and death frequently occurs at the age of fifty or sixty in apparently healthy people from influenza, pneumonia or after severe exertion.

Croner [93] considers the prognosis among the lower classes more favorable than it is usually considered. In only one instance was there apparently a cure. This was that of a laboratory assistant now seventy-two years of age, who in 1900 had 5.7% sugar. Under diet the sugar disappeared in November, 1901, and since has not returned despite a diet which is now unrestricted.

PENTOSURIA.

Theodore C. Janeway [94] adds two more cases of essential pentosuria to the 17 so far reported. The 2 cases occurred in brothers twenty-eight and twenty-seven years of age, one of whom had been treated for diabetes for one year. Janeway noticed the discrepancy between the changes of diet and the sugar in the urine, and tested the same for pentose. The urine reacted with Fehling's solution, but failed to ferment after the administration of 100 gm. glucose to the patient. This result is similar to that of Tintemann.[95] He found no increase of pentose or any glycosuria after the administration of 50 gm. glucose or levulose, but galactose in the same amount raised the excretion of pentose up to 8.3 gms. Xylose behaved as with normal individuals, 40% being excreted as pentose, just as Johnstone [96] found arabinose in urine after ingestion of arabinose. The administration of 100 gm. calves' thymus possibly increased the excretion of pentose, but the presence of uric acid may have caused confusion in the reaction.

Janeway found the pentose optically inactive. The orcin test was present, and the osasone gave a melting point of 154° to 158° C. The amount of pentose excreted in twenty-four hours varied between 2.5 gm. and 4.2 gm. The brother's case was almost a counterpart.

Janeway points out that there are three types of pentosuria: the alimentary, corresponding to alimentary glycosuria, the pentosuria which occurs in severe diabetes, and the chronic pentosuria of the above type. The sugar in all cases reported, with the possible exception of one, has been inactive arabinose. This is the only known occurrence of an optically inactive sugar in nature. It is characteristic of these cases of pentosuria that the pentose does not come from vegetable pentose or from the L-xylose of the nucleins. The power of oxidizing the hexoses, L-arabinose and those nucleo-proteids which contain pentose is unaltered. Nuclein metabolism is not increased. Family tendency is well marked, because 19 of the reported cases presented four family groups. Pentosuria is an anomoly of intermediary metabolism, as a result of which there is a synthesis of this form of sugar. It is analogous to cystinuria and alkaptonuria rather than to diabetes mellitus. Any urine which reduces Fehling's solution only after a few minutes' boiling, and then with a sudden change of color, or orange yellow throughout, awakes a suspicion of the presence of pentose.

Johnstone [96] has studied alimentary pentosuria artificially produced under various conditions, and his article as well as Janeway's is especially recommended to those interested in the subject.

LEVULOSURIA.

The simultaneous appearance of levo-rotary substances in the urine, with dextro-rotary grape sugar is unusual, but of late years has been more commonly reported. Such substances are albumin, B-oxybutyric acid, paired glycuronic acid and levulose. The appearance of levulose is of interest on account of its relation to diseases of the liver and diabetes. It is known that the limit of assimilation of the healthy organism for levulose is about 200 gm. taken at one time on an empty stomach. Such a large amount undoubtedly reaches the circulatory system without passing through the liver by means of the thoracic duct. Alimentary levulosuria occurs when levulose appears in the urine after 100 gm. have been taken at one time on an empty stomach. This takes place frequently in diseases of the liver, and has become a symptom of functional insufficiency of the liver. The change of levulose into glycogen evidently takes place in the liver, because in frogs deprived of a liver the formation of glycogen fails after the administration of levulose, while this is not the case when dextrose is given. Alimentary glycosuria is comparatively seldom in diseases of the liver, and when it occurs it suggests that there is simultaneous disease of the pancreas, because recent anatomical studies have shown that sclerotic changes in the liver are very frequently associated with diseases of the pancreas. Minkowski showed that after complete removal of the pancreas a storing up of glycogen could not be obtained with dextrose, while after the administration of 400 gm. levulose, 46 gm. glycogen were formed in the liver.

Levulose is the best assimilated of all forms of sugar, but it may appear in the urine in diabetes and is of grave significance according to Von Noorden.[97] Graul reports such a case [98] A man fifty-five years of age was found to have diabetes. He improved under treatment, but two months before the present observation suffered severe colic in the region of the liver. The examination of the urine showed 1,500 cc. — specific gravity 1039 — 4½% dextrose by the polariscope, no albumen, no acetone, no di-acetic acid. Under strict diet sugar disappeared, and tolerance increased up to 150 gm. potatoes and 100 gm. graham bread. When two or three bottles of wine were added to this diet the examination of the urine showed slowly appearing Trommer's and Nylander's reactions with levo-rotation 0.1% reckoned as dextrose. Seliwanoff's test (which consists of boiling the diluted urine with concentrated hydrochloric acid with the addition of a few granules of resorcin, and a solution of the precipitate in alcohol) was weak but distinct. Orcin hydrochloric acid test negative. Fermentation positive. Albumin was absent and B-oxybutyric acid could be excluded on account of the absence of acetone and di-acetic acid. The only other substance to be considered except levulose was paired glycuronic acid. No drugs like chloral hydrate, menthol and camphor, which give rise to glycuronic acid, had appeared in the urine, and against its presence also was the fermentation of the urine.

Graul suspects that the cause of the levulosuria lay in the wine, because when that was withdrawn from the diet the urine showed no reduction, and was inactive with the polariscope. Subsequent tests showed that after 100 gm. levulose had been administered, a levo-rotation of 0.4% reckoned as dextrose, was obtained, while after 50 gm. a levo-rotation of 0.1% which was the same as that obtained when 30 gm. dextrose and 30 gm. levulose were simultaneously administered. The administration of 60 gm. cane sugar showed a positive Trommer's and Nylander's test, faint but distinct Seliwanoff's test fermentation, no rotation with polariscope. This would seem to indicate that both dextrose and levulose were present, but in quantities sufficient to offset each other. 100 gm. innulin caused no excretion of reducing substances in the urine.

TREATMENT OF DIABETES INSIPIDUS BY INJECTIONS OF STRYCHNINE.

Kétly [99] has treated 4 cases of diabetes insipidus with subcutaneous injections of strychnine. The results were satisfactory in three instances, though it is unfortunate that the patients were not longer under observation. The first case showed no improvement in a month, though the dose was increased from 1-120 gr. (0.0005 gm.) to 1-6 gr. (0.01 gm.). The second case was treated for two weeks beginning with 1-60 gr. (0.001 gm.) and ending at 1-9 gr. (0.007 gm.), during which time the urine fell from a quantity of 3,000 cc.–5,000 down to 2,500 cc.–2,100 cc. without increase in specific gravity. In the third case after a month's treatment the quantity of urine fell from between 6,000 cc. and 9,000 cc. to 2,000 cc. The dose of strychnine was raised gradually from 1-120 gr. (0.0005 gr.) to 1-6 gm. (0.01 gm.). At the end of two months after cessation of treatment the urine continued to be not over 2,000 cc. The remaining patient was also treated for a month with similar doses with good result, but this was not permanent.

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Reports of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

THIRTY-SECOND ANNUAL MEETING, HELD AT HOT SPRINGS, ARK., NOV. 6, 7 AND 8, 1906.

THE PRESIDENT, DR. J. HENRY CARSTENS, of Detroit, Mich., in the chair.

The meeting was held at the Eastman Hotel.

The scientific work was divided into medical and surgical sections.

Addresses of welcome were delivered by Mayor George R. Belding, in behalf of the city of Hot Springs, by DR. S. P. COLLINGS, in behalf of the medical profession, and by Hon. Charles G. Greaves.

These addresses were responded to in behalf of the association, by DR. J. M. MATHEWS, of Louisville, Ky.

THE FUTURE OF THE MEDICAL PROFESSION.

PRESIDENT J. HENRY CARSTENS, of Detroit, Mich., referred to the early history of medicine, and said that great advances had been made during the last thirty-five years. Men of humble origin, but with the right kind of brains, who had an opportunity to enter the profession, had done much to clear up some of the moot questions. By gradually increasing the requirements only the best minds had been able to enter the practice of medicine. Only men with the best mental caliber should be allowed to practice medicine. The second and third class brains should take up some other calling.

Referring to organization, he said that as the country was large, it was desirable to have larger societies in different parts of the country, but that the American Medical Association should not establish a rule and force certain states to join together in the form of a branch; it should be left to the members to organize any kind of way they desired. If a certain branch in the east or the west or the south formed an organization, all right. If they ran over the border into some other branch, what was the difference? We could have a Mississippi Valley Society, a Southern Society, or a New England Society, and a Rocky Mountain Society, and still any member of the American Medical Association should have a right to belong to any one or all of them. He was sure that at the next meeting of the American Medical Association this point would be settled.

The great men of the medical profession were working unselfishly for the good of the race. The moral tone had been wonderfully elevated.

Liars in the medical profession had diminished materially, and with a higher standard he hoped they would soon be eliminated entirely. There were still some liars in the profession, and in his experience there were few among the young members. Some of these liars were of the pious order. They regularly attended church. They were very busy; they could not get there until just when the prayer began; they could only walk halfway down the aisle and stand so that the whole congregation should see them until the prayer was finished. Another of these pious varieties went to church late, walked to the front pew, and dropped down like a bag of flour, with the air of utter exhaustion, the people, ever ready to exclaim, " Poor fellow, he works so hard." Another variety of liar was the man who claimed to be a specialist, but who, if he was a surgeon, treated typhoid fever and pneumonia if the patient were wealthy. He would even treat measles and cholera infantum if the grandfather was a millionaire.

Physicians were and should be the great teachers of the race; hence they should have broad views of life and a thorough knowledge of all kinds of things. At present they must educate the more intelligent people of the community.

Dr. Carstens made an eloquent plea for thorough general knowledge. The days when the medical man only knew something about drugs, or how to treat some diseases, were past. The physician should take an interest in everything that affected the community in which he lived. He should be first and foremost and all the time a physician, but still he should be informed on all kinds of questions. He should thoroughly understand the workings of the inner mind, quickly grasp the weakness and the strength of an individual's mentality, and thus be able to shape the course of the individual and of the community.

SOME MENTAL SYMPTOMS DUE TO DISEASE OF NASAL ACCESSORY SINUSES.

Dr. J. A. Stucky, of Lexington, Ky., said that acute or chronic disease of the nasal accessory sinuses frequently gave rise to serious forms of mental disturbance. This was very evident from the number of cases of melancholia and suicide which were reported as having been due to la grippe or influenza.

He reported ten cases. All of the cases gave evidence of chronicity having existed for a long time. All gave the prominent characteristic symptoms of suppuration and were submitted to the usual diagnostic tests. All were operated upon after the Killian method of entering the frontal sinus, removing the floor of the sinus, or enlarging the infundibulum, as well as removing the middle turbinate and the anterior ethmoidal cells, and as many of the posterior cells as could be found which gave evidence of being involved in the suppurative process. In two cases, in addition to invasion of the frontal and ethmoid, the sphenoid was involved; In eight other cases the maxillary sinus was also involved in the suppurative process. Probably in the ethmoid or its offshoot, the middle turbinate, was to be found the cause for the majority of cases of infection of the frontal, maxillary and sphenoidal sinuses. In these and many other cases of chronic ethmoiditis he had noticed one or several of the group of symptoms associated with this disease mentioned by Beaman Douglas, the cause of which had not been explained. It was evidenced by slow deterioration of the mental faculties, an inferior quality of work, loss of memory, disability for continued application, over-anxiety, general incapability and procrastination.

In neurotic subjects and those with lowered vitality from any cause, an ethmoidal, sphenoidal, or frontal affection might start the vicious circle composed of the sinus affection proper, and the neurasthenic or hysteric conditions which later reached a form and degree which sometimes allowed us to classify the bearer as one bordering on insanity.

TYPHOID FEVER.

Dr. I. H. C. Cook, of Hattiesburg, Miss., read a paper on this subject, in which he described the modes of conveyance, and discussed the morbid anatomy, symptomatology, complications, intercurrent diseases, diagnosis, prognosis and treatment of the disease; likewise the treatment of complications.

METABOLIC ASPECTS OF OVERFEEDING AND OF UNDERFEEDING.

Dr. Ralph W. Webster, of Chicago, pointed out that by the term "overfeeding" or "forced feeding" was meant the giving of an amount of food which furnished the body more energy than it needed, utterly regardless of whether the addition be in the form of proteid, carbohydrate, or fat. The errors in diet, which most of us unfortunately committed, were productive of various disorders as a result of the overtaxing of the digestive, absorptive, assimilative, or excretory organs with excessive products of metabolic activity, and of a series of peculiar derangements pointing to a condition of undernutrition. He referred to the obese, diabetic and gouty subjects, on the one side, and the neurasthenic, neuralgic and chlorotic patient, on the other. He treated the subject of overfeeding only as a therapeutic measure and not as a causal factor in disease. Addition of an excess of food, in the form of fat or carbohydrate, exerted, even when given in large amounts, only a slight increase in the energy relations of the system. This applied to an immediate increase in the oxidative processes and not to the later effects of the reserved fat or carbohydrate. Only a part of such excess was burned up in the system, the chief part being stored in the various depositories subject to the checking orders of the system. On the addition of fat to the diet, almost the total excess of energy was turned to the advantage of the body, not in the form of increased energy, but rather in the form of latent energy as a deposition of fat. Zuntz had proven that of 100 gm. of fat increase in the diet, 97–98 gm. were stored up. With the carbohydrates the relations were not quite so high. A loss of 10%, according to Zuntz, was observed in the total energy available from an increase of carbohydrate. Moreover, the conversion of the carbohydrates into fat was accompanied by some loss of heat.

An increase of proteid in the diet raised, on the contrary, the general tissue metabolism, as evidenced by the increased oxidation, far above the normal standards and far above that which could be traced to the activity of the bowel. This primary increase in the oxidative processes, which was effected by a meal rich in proteids, lasted for eight to ten hours. This fact might be expressed more briefly in the statement that every addition of proteid increased the proteid decomposition, the system soon adapting itself to a new equilibrium. It was erroneous to refer every loss of nitrogen to an increased decomposition of body proteid. There was no reason for supposing that tissue proteid was decomposed in any different way than was food proteid. We were not justified in assuming that the products of tissue metabolism were normally or abnormally any different from those of food metabolism under the same conditions. The point of all that was that the increased nitrogen excretion observed under certain conditions might be referable to the proteids of the food and not to those of the tissues.

Dr. Webster spoke of proteid sparing; flesh and fat; increased calorie consumption; increase of nitrogen; indications for forced feeding, and discussed underfeeding.

The following general effects of a long-continued underfeeding were to be recognized:

"1. The proteid decomposition sinks up to a certain point, beyond which further decomposition is serious. The body at this point adapts itself to a fairly permament equilibrium, as is shown by the fact that not so much body proteid is lost in the later periods as in the beginning. Nitrogenous equilibrium can be maintained, as Voit, Rumpf, Siven and others have shown, on a lower proteid addition than is customary, provided the calorie need is covered.

"2. Long-continued underfeeding, aside from very slight degrees of calorie deficit, lead to constant loss, not only of body fat, but also of body proteid, immaterial whether the proteid intake be large or small. The absolute height of the N-excretion depends on the amount of proteid, but the maintenance of nitrogenous equilibrium is independent of the amount as a balance is established to suit the intake. A caloric poor diet, which is rich in proteid, may protect the N-loss or may even raise it for a time, but the final result will be the same as if all parts of the diet were simultaneously reduced.

"3. Whenever the addition of food lessens the calorie deficit, a building up of cell material takes place although the calorie need at this time may not be completely satisfied. This condition lasts until the body is accustomed to the new equilibrium, when N-loss begins anew unless the calorie need is absolutely covered."

The author pleaded for a more scientific and more intelligent recognition of the advantages and disadvantages of dietary, bringing about a more normal condition of patients, whether they be racked with disease or suffering with malnutrition, excessive or deficient.

INTESTINAL OBSTRUCTION, WITH OBSERVATION ON ITS SURGICAL TREATMENT.

Dr. H. O. **Walker**, of Detroit, Mich., reported 11 cases of intestinal obstruction upon which he had operated since May 16, of this year. Seven of them were chronic, 2 of which became acute, making practically 6 acute and 5 chronic cases of obstruction of the bowel. Six were of the small intestine, 5 of the large. Two of these cases involved both small and large intestines. The mortality was 5, making a percentage of 45.5%, a much better record than was usually obtained, yet he firmly believed that had he seen these cases earlier there would bave been little doubt that 3 of the 5 who died could have been saved, showing that the great mortality, as Moynihan puts it, was the mortality of delay.

The advantage of early diagnosis and early operation could not be emphasized too strongly. While collapse might be an early symptom of intestinal obstruction, it was not characteristic, but indicated severe peritoneal nerve irritation. Pain was sudden and agonizing in character, which was also an evidence of severe peritoneal irritation, described as colicky with exacerbations, and was persistent until general peritonitis or intestinal gangrene supervened. Vomiting was most always present at the onset, was incessant and plentiful. The character of the vomit was as follows: First, stomach contents; second, bile and mucus; third, stercoraceous, either with or without fecal odor. Liquid fecal vomit was a late symptom and had a very foul odor, as was observed in case 6 of internal strangulated hernia at a point in the lower ileum, caused by a back action peristalsis. Abdominal rigidity was not an early symptom in intestinal obstruction, such as was found in appendicitis or other localized peritoneal inflammation. Rigidity and tympany were very late symptoms. Peristalsis could be seen occasionally in emaciated subjects with thin abdominal walls where chronic obstruction of the bowel existed.

DISCUSSION.

Dr. T. J. **Watkins**, of Chicago, agreed with the essayist as to the importance of early diagnosis and of advocating early operation. His experience led him to believe that early operations for intestinal obstruction were almost certain to result in cures, whereas late operations were almost certain to result fatally. He recalled 8 acute cases upon which he had operated in the last two years. Six were operated on within six or twelve hours after obstruction had taken place, and all recovered. The other 2 were operated on late, and both died.

Dr. Edwin **Walker**, of Evansville, Ind., referred to one cause of delay in operating on cases of intestinal obstruction — the use of cathartics. Cathartics were very much over-rated remedies. He had occasion last year to look up the subject, and was impressed with the ignorance of the general profession as to the action of cathartics and the method of prescribing them. In cases of intestinal obstruction, cathartics were productive of much harm. In fact, in his judgment, there were few intestinal diseases of any kind that were benefited by cathartics.

Dr. F. F. **Lawrence**, of Columbus, Ohio, said the time when the physician should not use cathartics was when intestinal obstruction was suspected. If there was a volvulus, an intussusception, obstruction by bands, he thought cathartics would favor intestinal peristalsis, intestinal perforation, and a funeral. The placing of a patient with intestinal obstruction in the knee-chest or Trendelenburg position, and rectal inflation with air, oil, or water, were equally pernicious.

The subject was further discussed by Drs. A. H. Cordier, of Kansas City, Mo., Channing W. Barrett, of Chicago, J. Henry Carstens, of Detroit, all of whom emphasized the importance of making an early diagnosis and of instituting operation at the earliest practicable moment thereafter.

MIGRAINE.

Dr. C. S. **Chamberlin**, of Cincinnati, Ohio, said that after a very careful and fairly extended study of the treatment of migraine, which had included the use of a great number of remedies and combinations of remedies recommended by various writers on the subject, as well as those which his own ingenuity had evoked, he had come to the conclusion that Rachford's plan of treatment was the only one which was not injurious to the patient and which could be depended upon for relief in most cases, and for cure in a considerable ratio of chronic cases. This treatment consisted in the daily administration of the following prescription:

Sodii sulphatis (dry), 30 gr. Sodii salicylatis (from wintergreen), 10 gr. Magnesii sulphatis, 50 gr. Lithii benzoatis, 5 gr. Tincture nucis vomicæ, 3 drops. Aquæ destil. to make 4 oz.

This preparation was put up in siphons and charged with carbonic acid. Occasionally Dr. Rachford made some slight variation in the formula, but, as a rule, adhered to that which was here given.

As this form of dispensing the prescription was not only very inconvenient but expensive to a prohibitive degree to most persons, he determined to try it in the form of a granular effervescent salt, and had a quantity manufactured for experimental purposes. He had dispensed fully one hundred pounds of this granular effervescent salt during the last three years, and was convinced that the prescription in this form was fully as efficient as in the more expensive form of a carbonated solution.

THE DANGER OF DUST AS A CAUSE OF TUBERCULOSIS.

Dr. George **Homan**, of St. Louis, Mo., contributed a paper on this subject, in which he submitted the following points: 1. That efforts toward the eradication of human tuberculosis will fail which do not take full account of household dust as a factor in the dissemination of that disease. 2. That scientific tests have shown that the seeds of pulmonary tuberculosis, harbored within doors in the dried state, are capable of retaining their effective vitality for prolonged periods of time. 3. That any method or procedure employed in inhabited buildings which causes dust to be disseminated must be considered as tending to spread the seeds of consumption. 4. That hotels, clubs, theatres, office buildings, schools, churches, and business establishments generally should be required by law to introduce and operate dustless methods of cleaning. This part of their mechanical equipment should be held as necessary as provisions similarly made for warming, ventilation and for fire protection and fire escape. The employment of dustless methods in private residences is urged as being equally imperative for the control and suppression of all forms of tuberculous disease."

(*To be continued.*)

Book Reviews.

A Laboratory Manual of Physiological Chemistry. By Elbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology and Head of the Department of Chemistry in the University of Iowa, etc. Second edition, revised and enlarged. With one colored plate and three plates of microscopic preparations. Large 12mo. 229 pages, extra cloth. Philadelphia: F. A. Davis Company. 1906.

This excellent laboratory manual, devoted to physiological and biological chemistry, has been revised and somewhat enlarged. The plan of the book is good and has been arranged with the view of imparting accurate knowledge through the student's own observation. For example, the subject of the saliva is treated by brief preliminary remarks, giving the physical properties, its source and nature; this is followed by several clearly arranged experiments which should be sufficient to leave a lasting knowledge of the constitutents of the saliva, and its function in the human body. The other subjects are similarly treated. We can safely recommend the book.

Aids to Chemistry. By T. A. Henry, D.Sc. (Lond.), Chief Assistant Chemist, Scientific and Technical Department of the Imperial Institute, South Kensington; Fellow of the Chemical Societies of London and Berlin. New York: William Wood & Co. 1906.

The new edition of this little book is, as its name signifies, merely an aid to chemistry. It is intended to supplement lecture courses in medical and pharmaceutical chemistry and should serve such a purpose admirably. It is of small size, concise and accurate.

The Physician's Visiting List (Lindsay & Blakiston's) *for 1907.* Fifty-sixth Year of its publication. Philadelphia: Blakiston's Son & Co.

The year 1907 is the fifty-sixth of the publication of this visiting list. Its advantages are its small size, its attractive binding and excellent arrangement for the purpose for which it is designed. The list as usual contains many facts regarding dosage, incompatibles and other matters at times forgotten, but useful to the practitioner. We recommend again, as we have done before, this list to practicing physicians.

Aids to Surgical Diagnosis. By H. W. Carson, F.R.C.S. Surgeon Tottenham Hospital. New York: William Wood & Co. 1906.

This volume is one of the "Students Aid Series" and is intended to present, as its title indicates, in a concise, abbreviated form the main points of diagnosis and differential diagnosis of the more common surgical diseases. No attempt has been made to deal with special affections, and effort has been made to avoid "over-elaboration and repetition." The reader is briefly told how the examination of a surgical case should be made. Then the diseases and injuries of the various parts of the body, classed anatomically and topographically, are presented. The book is well arranged and frequently comparative tables and graphic methods aid the reader in comprehending the text. The object of the book seems to have been carried out, but at times the subject under consideration has been very briefly presented. It is a book fully up to the usual standard of books of this class. It should be a valuable aid to a student desiring to rapidly review the subject of surgical diagnosis.

Travaux de Chirurgie. Anatomo-Clinique. Par Henri Hartmann, Professor Agrégé à la Faculté de Médecine, etc. Troisième Série. *Chirurgie de l'Intestine.* Avec 153 figures. George Steinheie, éditeur. Paris: 1907.

This the third volume of the work on Surgery, being published by Professor Hartmann and his assistants is mainly devoted to the surgery of the intestine. It resembles in its general character the preceding volumes. The same attention has been paid to normal and pathological anatomy. Some of the subject matter presented is still a matter of study. The surgery of the intestines is considered under the following headings: The technique of intestinal and gastro-intestinal anastomoses; the exclusion of parts of the intestine, its technique, the indications for, the results; the surgical anatomy of the colon; the pathological anatomy of tumors of the colon; the clinical study of such tumors; the surgical treatment of cancer of the colon; finally, sarcoma of the small intestine, its history, pathology, clinical characteristics, diagnosis and treatment.

The volume is interestingly written. It is the result of much careful study and observation on the part of the author and his colleagues. It has treated the subject under discussion at length. The author has considered it from its anatomical, pathological, clinical and surgical standpoints. He describes and discusses the origin, appearances, location and results of the different neoplasms of the intestine requiring surgical treatment. He describes at length the technique of the various operative procedures now in vogue, and has supplemented the descriptive text by illustrations. The book, as a whole, is one which deserves a careful reading. It contains a description of the subject indicated by its title which is a valuable contribution to surgical literature. It is an excellent presentation of the work of French surgeons in intestinal operative work at the present time.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 27, 1906.

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FORTY-SECOND ANNUAL REPORT OF THE BOSTON CITY HOSPITAL.

THIS report covers a period of twelve months from Feb. 1, 1905, to Jan. 31, 1906, a period nearly a year remote from its publication. It contains as usual the report of the trustees and the report of the superintendent in regard to the various departments, with accompanying tables of general statistics and tables of medical and surgical statistics.

The present capacity of the hospital departments in beds is stated as follows: Hospital proper, 615; South Department (infectious diseases), 264; relief station, 20; convalescent home, 36; total, 935. The net cost to the city *per capita* per week for treatment and maintenance of patients in the hospital proper was $9.26, in the South Department, $9.41. The number of in-door patients treated has not increased very much in the last ten years, but the number of out-patients treated has increased more than 117%. The trustees consider that two causes probably explain this increase: "First, the new buildings where this class of patients are treated afford very great advantages over the old buildings. The work of consultation, examination and treatment is better and more suitably done; there is greater privacy by reason of increased number of rooms, and improved classification. Secondly, many persons amply able to pay a physician seek gratuitous advice and treatment. The abuse of medical charity is a long existing evil and constitutes a common sociological problem the world over. This hospital being a public hospital, supported from the tax levy of the city, makes the problem an entirely different one from that of a private or incorporated hospital. Free treatment of persons fairly able to pay a small fee to a physician is the first step towards pauperism; it is unfair in the expenditure of our appropriation, and an injustice to the physicians in private practice, especially the younger ones. Gratuitous and indiscriminate giving leads to excess; and perhaps too rigid restriction might be unfair to the worthy poor."

There is no doubt that the work done in these out-patient services, and at other institutions likewise, has been steadily developing in importance and efficiency in recent years, and it is probably true that the temptation to misuse them has also increased.

In regard to the department for infectious diseases, the South Department, the trustees take occasion to again emphasize the necessity for another separate building for treatment of measles. In regard to this department they make the significant statement that "year by year the public of all classes has come to know more definitely the advantages of isolation and special treatment for infectious diseases. Many of our best physicians now send their own children here for treatment and there are few forcible removals from the families of working people."

The training school for nurses had completed its twenty-eighth year. The course of study was changed from two to three years.

The hospital has two one-story wards, wooden buildings covered with corrugated iron, which were put up twenty-nine years ago as "temporary" structures. They have given excellent service and from a hygienic point of view are still satisfactory, but the trustees strongly deprecate their being longer retained on account of the danger which they offer from fire.

Under the head of "Paying Patients," we find a statement of considerable interest from various points of view, to the effect that the total amount credited to the hospital department during the year on account of paying patients reached the large sum of $99,070. This sum is more than one fifth of the entire expenditure for all departments of the hospital, during the fiscal year, and is $41,812 more than was received the previous year from the same sources. According to the report this increase is due to several causes: "A more rigid enforcement of the laws in regard to the settlement of non-residents, and collection of money for their board; less resistance on the part of cities and towns for the payment for board and attendance of patients at the

South Department. There has been shown a more willing spirit on the part of ward patients to pay a moderate price rather than be classed as charity cases."

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PUBLIC LECTURES ON MEDICAL SUBJECTS.

A DEFINITE tendency has been observable the past few years to bring directly before the people certain matters which have immediate bearing upon the public health. As knowledge of disease has grown, and especially that relating to the bacterial affections it has become apparent that one of the most efficacious means of combating their spread is through education of the people in matters of hygiene, using that term in its broadest sense. The secrecy which long prevailed regarding medicine and medical treatment is rapidly giving place to a more rational attitude, which takes advantage of the growing intelligence of the laity, and admits it, at least in part, to coöperation in the common work against the spread of disease. This situation is clearly due to the exact knowledge which the study of bacterial infections has of late years developed. While knowledge is empirical and inexact it is no doubt well for all concerned that it be not too widely promulgated. If the people at large, however, can be given definite and well-established rules for the hygienic guidance of their lives, it is highly desirable that it should be done, and by those most competent to speak on the various topics involved.

The wide-spread publicity which has of late been given to the conditions underlying the spread of tuberculosis, and the means of their avoidance, has done more than any other one thing to bring the laity into closer relations with the medical profession. That the effect both upon the profession and the people has been salutary no one can for a moment question who has followed the movement from its beginning. It is altogether natural, therefore, that a desire should manifest itself to extend the principle so well exemplified by this disease to other fields closely connected with the public health and welfare.

In this connection we are glad to call attention to a plan about to be adopted by the faculty of the Harvard Medical School, designed to instruct the public in an authoritative way regarding a wide range of subjects in which it is or should be interested. This instruction is to take the form of lectures, to be given Saturday evenings and Sunday afternoons from January 12 to May 12, at the medical school. The lectures are to be given by various teachers of the school and are to be free to the public. The intention is to make them as attractive and practical as possible by means of illustrations and demonstrations. In another part of this issue we publish a list of topics as provisionally outlined; it will be seen from this list that a wide range of subjects is touched upon, bearing upon matters which can hardly fail to be of interest and profit to an audience untrained in technical knowledge.

This somewhat novel idea of bringing the medical school and through it the medical profession at large into personal relations with the community is certainly significant of the changing position which medicine is coming to assume. The advantages are manifest. It should tend to vitalize medicine in the popular mind; to show its relation to the commonplace events of daily life and to impress upon the public that modern scientific medicine has the closest possible relations to the problems which meet the individual, the family and the community in the ordinary conduct of their lives. In any such attempt, however, the utmost care should be taken to prevent the possibility of misconceptions on the part of those who may attend the lectures. Matters still in doubt and theories should be carefully subordinated to a plain statement of ascertained facts which have a definite practical bearing. Those who give the instruction should realize fully that the difficulties are far greater than, for example, in lecturing to a class of medical students. We have no doubt, however, that such difficulties will be met, and it requires no great imagination to foresee in the plan which the Harvard Medical School has outlined an enterprise of far-reaching and beneficent import.

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THE OPHTHALMOSCOPE IN ARTERIOSCLEROSIS.

NOTWITHSTANDING the mass of literature on the ocular manifestations of arteriosclerosis, their diagnostic and prognostic significance, reference to the value of the ophthalmoscope as a means of diagnosis is rarely to be found in medical textbooks, and it is doubtful if the general practitioner is aware of the valuable information he may obtain from a fundus examination. It is also at least open to question whether the oculist fully realizes the significance of slight but unmistakable vascular changes occurring in middle-aged and elderly patients and is fully alive to the value of treatment instituted in the early stages of this disease.

These early retinal signs include a loss of transparency of the vessel wall, a diminution or irregularity of caliber, abnormal tortuosity and the characteristic indentation of a vein as it passes either under or over an artery.

Beginning in the eighties with the reported cases of Hirschberg, Uhthoff, Schmall, Fürstner, Story and Benson, and especially with Raehlmann's[1] careful study, and continuing more recently with the work of Preston and Friedenwald, Bull, Alleman, Woodruff, Gunn,[2] De Schweinitz,[3] and others, it became evident that in nearly one half the cases of general arteriosclerosis lesions of the retinal vessels could be detected with the ophthalmoscope, and probably in the cerebral type of the disease the percentage is even larger. Just how early these lesions may appear in the eye we do not know, but that the oculist, by finding an obstructed retinal artery or vein, is very frequently the first to make a diagnosis of general vascular disease is an established fact. Unfortunately the patient showing such changes cannot be regarded as in the early stages of the disease but in the final one, as is well pointed out by Trousseau[4]; and it was with that in mind that Gunn in 1898 and De Schweinitz in his recent valuable paper have called attention to the aid the ophthalmoscope affords in making an early diagnosis possible. That an aid to present methods is welcome is well shown by Stengel[5] who writes: "Arteriosclerosis in its well-developed stage can be recognized with no great difficulty in most instances, but the positive determination of the existence of the earlier stages is extremely difficult but most essential if we are to accomplish anything in the way of controlling the progress of the disease." Again he writes: "The ophthalmoscope may yield positive evidence of vascular disease before the disease [arteriosclerosis] has become marked." Some six years previously Gunn wrote: "The ophthalmoscopic observation of these changes in the fundus demands no great skill, and I believe that we have here a ready and valuable means of diagnosing a general disease which is otherwise often very difficult to detect."

By no other method of examination may we obtain more positive evidence in the early stages of arterial disease, for, as De Schweinitz observes, these changes in the fundus probably occur in connection with no other process while the other cardinal signs may be found in other conditions of the organism in which arteriosclerosis has no part.

We therefore believe that the possibilities of the ophthalmoscope in this disease should be brought to the attention of the profession in general.

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MEDICAL NOTES.

Trustees of the Carnegie Institution. — Dr. William H. Welch, professor of pathology at the Johns Hopkins University, and Dr. Henry S. Pritchett, president of the Carnegie Foundation, have been elected trustees of the Carnegie Institution.

A New Laboratory of Experimental Medicine. — Gifts of $100,000 each have been made to Western Reserve University, Cleveland, Ohio, by Mr. H. M. Hanna and Col. Oliver H. Payne. With the sum thus subscribed a laboratory of experimental medicine will be established in the medical school. A professorship of experimental medicine has been created and Prof. George N. Stewart, of the University of Chicago, has been elected to the chair.

Annual Meeting of the American Association for the Advancement of Science. — The annual meeting of the American Association for the Advancement of Science, in connection with the National Scientific Society, will be held in New York the week beginning Dec. 27. Dr. W. H. Welch is president of the meeting. In the Section of Physiology and Experimental Medicine, an address will be delivered by Dr. W. T. Sedgwick on the "Expansion of Physiology," and there will be a symposium on "Protozoa as Factors in Disease."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Dec. 26, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 37, typhoid fever 12, measles 12, tuberculosis 22, smallpox 0.

The death-rate of the reported deaths for the week ending Dec. 26, 1906, was 18.70.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Dec. 22, 1906, was 211, against 192 the corresponding week of last year, showing an increase of 24 deaths and making the death-rate for the week 18.70. Of this number 103 were males and 113 were females; 212 were white and 4 colored; 133 were born in the United States, 78 in foreign countries and 5 unknown; 48 were of American parentage, 139 of foreign parentage and 29 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 44 cases and 5 deaths; scarlatina, 39 cases and 0 deaths; typhoid fever, 11 cases and 2 deaths; measles, 12 cases and 0 deaths; tuberculosis, 30 cases and 23 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 39, whooping cough 4, heart disease 27, bronchitis 5 and marasmus 2. There were 18 deaths from violent causes. The number of children who died under one year was 39; the number under five years 52. The number of persons who died over sixty years of age was 52. The deaths in public institutions were 67.

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[1] Raehlmann: Arch. f. Psychiat., xx, 2, p. 566.

[2] Gunn: Tran. Ophth. Soc. of the United Kingdom, 1898, p. 356.

[3] De Schweinitz: Ophth. Rec., August, 1906.

[4] Trousseau: Soc. Ophtalmol. de Paris, Mai, 1906, in Annales d'Oculist.

[5] Stengel, cited by De Schweinitz.

There was 1 case and 1 death reported from cerebrospinal meningitis during the week.

Tuberculosis Exempt from Pauperism. — We learn from the Massachusetts State Board of Charity that it will be the policy of that office hereafter to consider tuberculosis as exempt from pauperism. Section 2, chapter 213 of the acts of 1902 provides for this attitude, it being a disease dangerous to the public health.

Hydrophobia in Connecticut. — In Connecticut, as in other New England states, an unusual number of dogs have been attacked by rabies during the past few months. A number of persons have been bitten and two deaths have been reported recently,— one in Windham and the other in New Britain. The *Monthly Bulletin* of the Connecticut State Board of Health urges the general muzzling of dogs and the killing of those without owners.

Free Public Lectures on Medical Subjects. — The faculty of Harvard Medical School has voted to offer a course of free public lectures, to be given at the new Medical School Buildings, Longwood Ave., Saturday evenings and Sunday afternoons, beginning Jan. 12, 1907, and ending May 12. Following is a list of the lecturers and their subjects, with dates:

Saturday, Jan. 12, Dr. Robert W. Lovett, "Unfavorable Conditions of Modern School Life"; Sunday, Jan. 13, Dr. Edward H. Bradford, "Deformities of the Feet from Shoes"; Saturday, Jan. 19, Dr. Robert W. Lovett, "Round Shoulders and Lateral Curvature"; Sunday, Jan. 20, Dr. Edward H. Bradford, "Costume Deformities in Growing Children"; Saturday, Jan. 26, Dr. Harold C. Ernst, "Bacteria in Health and Disease"; Sunday, Jan. 27, Dr. Charles Harrington, "Public Milk Supplies"; Saturday, Feb. 2, Dr. George W. Gay, "Under What Circumstances Should You Send for the Doctor?" Sunday, Feb. 3, Dr. Charles Harrington, "The Adulteration of Food and Drugs"; Saturday, Feb. 9, Dr. Harold C. Ernst, "Bacteria in Health and Disease" (no. 2); Sunday, Feb. 10, Dr. George B. Magrath, "How the Common Infectious Diseases are Spread"; Saturday, Feb. 16, Dr. Elbridge G. Cutler, "The Care of the Sickroom"; Sunday, Feb. 17, Dr. Charles Harrington, "Public and Individual Water Supplies"; Saturday, Feb. 23, Dr. Theobald Smith, "Antitoxins and Vaccines"; Sunday, Feb. 24, Dr. Maurice H. Richardson, "What Surgery Can and Cannot Do"; Saturday, March 2, Dr. Langdon Frothingham, "The Present Epizo-otic of Rabies"; Sunday, March 3, Dr. William T. Councilman, "Disease"; Saturday *afternoon*, March 9, Dr. Clarence J. Blake, "The Hygiene of the Ear"; Sunday, March 10, Dr. William T. Councilman, "Disease" (no. 2); Saturday, March 16, Dr. Joel E. Goldthwait, "Facts About 'Rheumatism'"; Sunday, March 17, Dr. Thomas Morgan Rotch, "Care of Healthy Infants and Prevention of Disease in Early Life"; Saturday, March 23, Dr. John Hildreth McCollom, "Some Points Concerning Nursing in Scarlet Fever and Measles"; Sunday, March 24, Dr. John Lovett Morse, "Tuberculosis in Early Life"; Saturday, March 30, Dr. Maynard Ladd, "Some Facts the Public Should Know Concerning the Feeding of Infants"; Sunday, March 31, Dr. Charles Hunter Dunn, "Significance, in Infancy and Early Life, of Disturbances of the Stomach and Bowels"; Saturday, April 6, Dr. Arthur K. Stone, "Some Phases of the Tuberculosis Problem"; Sunday, April 7, Dr. Theobald Smith, "Tuberculosis: Methods of Invasion and Dissemination"; Saturday, April 13, Dr. Harold C. Ernst, "Pulmonary Tuberculosis"; Sunday, April 4, Dr. Myles Standish, "Eyesight and School Life"; Saturday, April 20, Dr. J. Babst Blake, "Florence Nightingale and the Beginning of Surgical Nursing"; Sunday, April 21, Dr. Franklin W. White, "Food in Health and Disease"; Saturday, April 27, Dr. William T. Porter, "The Growth of Children"; Sunday, April 28, Dr. Franklin W. White, "Food in Health and Disease" (no. 2); Saturday, May 4, Dr. Maurice V. Tyrode, "History of the Treatment of Disease"; Sunday, May 5, Dr. John T. Bowen, "The Care of the Skin"; Saturday, May 11, Dr. Samuel A. Hopkins, "The Hygiene of the Mouth and Teeth"; Sunday, May 12, Dr. James S. Stone, "The Physical and Mental Development of Children."

The committee having the matter in charge will make an announcement later concerning the distribution of tickets.

NEW YORK.

Meeting of Society of Medical Jurisprudence. — The annual meeting of the Society of Medical Jurisprudence was held on Dec. 10, when the following officers were elected: President (succeeding Dr. Carl Beck), Mortimer C. Addoms; vice-president, Dr. Robert A. Murray; recording secretary, Charles P. Laney; corresponding secretary, Alfred E. Ommen; treasurer, John C. West. The medical members of the board of trustees elected were Drs. Carl Beck, Edward F. Brush, C. A. von Ramdohr and W. H. J. Speberg.

Reception Hospital for the Insane. — The annual meeting of the State Charities Aid Society was held on Dec. 10, when the Hon. Joseph H. Choate was re-elected president. At the meeting the announcement was made that the site for the proposed reception hospital for the insane, authorized by the legislature in 1904, had been selected by the authorities of the city of New York on the East River, between 73d and 74th streets. A psychopathic hospital will be built there, at a cost of $300,000, and it is believed that in such an institution a large number of cases of incipient insanity will be cured; while those patients in whose cases the course of treatment proves unsuccessful will be transferred to the large state hospitals for the insane.

Return of Dr. Grenfell. — Dr. Wilfred T. Grenfell, the esteemed medical missionary, returned to New York on Dec. 1, after two years' more of hard and successful work on the coast of Labrador under the auspices of the English Mission to the Deep Sea Fishers. He has now associated with him three other medical men, and four hospital stations have been established; three on the North shore and one on the South shore. Of great service to the fisherman has also been the floating hospital, "Strathcona," which was presented by the Canadian statesman, Lord Strathcona and Mount Royal. When asked as to the health conditions of the district, it was somewhat surprising to hear him state that tuberculosis was the greatest source of trouble. Dr. Grenfell, who, in the distribution of King Edward's birthday honors, has just been made a Commander of St. Michael and St. George, received a warm welcome from the Grenfell Association of New York. Among those in the directorate of the latter are Drs. Richard H. Derby, A. Alexander Smith and D. Bryson Delavan.

Dedication of Jewish Hospital. — The new Jewish Hospital of Brooklyn, one of the largest institutions of the kind in that borough, was dedicated on Dec. 9, in the presence of such a gathering that many persons were unable to obtain admission to the exercises. In his address the president of the hospital society stated that within the past ten years the Jewish population of Brooklyn had increased from 25,000 to 250,000, but that, while the support of the hospital was mainly sectarian, its benefits were to be absolutely non-sectarian, no patient being refused admission on account of religious belief. He accepted the key of the hospital, which was of gold, and the gift of Mrs. St. Clair McKelway, from the chairman of the building committee, and went on to say: "This key, which opens the door of this home of humanity, is to-day and should be forever a sacred emblem of the brotherhood of man." The building of the new hospital was formerly the property of the Memorial Hospitality, and is located at the corner of Classon and St. Mark's avenues. It was purchased by the Jewish Hospital Society in September, 1903, and since then has been remodelled and greatly enlarged.

Bequests. — By a decision of Surrogate Church, only two out of seven charitable organizations to which David Pearson, of Brooklyn, who died in June last, left bequests aggregating $300,000 are entitled to receive them. The reason for this decision is that Mr. Pearson's will was made less than two months before his death, and the bequests are therefore prohibited by a law which was passed in 1848. The two exceptions were orphan asylums which were organized prior to that year. Among the institutions which failed of their bequests were the Roosevelt, Presbyterian and Mount Sinai Hospitals of Manhattan, and St. Mary's Hospital of Brooklyn.

Deaths from Gas Poisoning. — Within the short space of forty-eight hours recently, no less than nine deaths from escaping gas were reported in Brooklyn. In every instance evidence was presented that the deaths were accidental.

A Gift to New York University. — Chancellor MacCracken of the University of New York has announced a splendid Christmas gift to the university from Mrs. Russell Sage. This is a plot of ground about 15 acres in extent adjoining the south line of the college grounds. The land is 180 feet above the Harlem, and much of it is covered with pine trees, while there are two large houses on it which will be remodelled for the purposes of the university. It is also an historic site. On it stood for many years Revolutionary Fort No. 8, and this is now commemorated by an inscription on a large bowlder. The cost of the property was something like $300,000, and, with the exception of the library building, which Miss Helen Gould presented twelve years ago, this is stated to be the most valuable single gift ever received by the university.

New York Lying-In Hospital Benefits. By a benefit performance recently of Browning's "Colombe's Birthday" at the Hudson Theater, the sum of $1,000 was netted for the Ladies' Auxiliary of the New York Lying-in Hospital.

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Current Literature.

Bulletin of the Johns Hopkins Hospital
December, 1906.

1. *Bancroft, F. W. et al. *Comparative Surgery. Second Series of Reports.*
2. *Knopf, S. C. *Tuberculosis, a Social Disease.*
3. *Towles, C. B. *The Influence of Aggressins upon Infections from the Genital Tract.*

1. From the Hunterian laboratory of experimental medicine, the animal hospital of the Johns Hopkins Medical School, the following reports are published to illustrate the surgical and pathological value of the studies conducted. Bancroft and Cross describe a case of hemorrhagic enteritis, occurring after an excision of the cecum, due to the coccidium bigeminum. Henry reports a case of chronic endocarditis with bloody ascites. Gatch reports six radical cures of prolapsus vaginæ in the dog. Hopkins reports six cases of infection with filaria immitis. Douchez gives further results of operation upon herniæ in dogs. Von Gerber publishes a case of sarcoma of an undescended testis. Heuer describes his investigations in four cases of distemper with full pathological and bacteriological reports, and inoculation experiments with the organisms obtained. All of these papers are carefully prepared and show evidences of a quality of work which would do credit to the laboratory of any hospital for human beings.

2. Knopf's paper is an exhaustive discussion of the factors in the etiology of tuberculosis, with suggestions as to their prevention. Heredity may predispose a child to tuberculosis; the same predisposition, Knopf maintains, may be produced by bottle feeding. Wet nurses and attendants may directly infect the child. Marriage and pregnancy should be prevented in tuberculous persons. After the nursing age, infected milk and tuberculous playmates are dangers, also tuberculosis in the home. Feeding and hygiene are to be attended to throughout childhood, both at home and in school, particular precautions being necessary in the latter to prevent indirect mouth to mouth transmission by pencils, apples, etc. Teaching of the necessary precautions in the school will do much to stamp out the disease in the community. The tendency to mental development at the expense of physical development must be counteracted. In the lower classes the underfeeding of school children and child labor in the home as well as in the factory demand attention. Sweeping and dusting should be done with moist saw dust or moist cloths; the same principles should be applied to the cleaning of streets. Alcoholism and alcoholic nostrums increase the danger. Isolation of tuberculosis is particularly needed in prisons and institutions. With regard to the management of those infected with tuberculosis, early diagnosis and sanatorium treatment should be more general. Education and periodical examination, both of children and of adults, by the family physician or by the dispensary, is to be urged. State sanatoria should be increased. We might well profit by the example of Germany in the establishment of compulsory insurance, the insurance company, under government control, maintaining sanatoria and supporting the family of the invalid during his absence from work.

3. Towles reviews the results of other authors which show that bacteria introduced into the normal vagina rapidly disappear, without producing disease. He also reviews the work of Bail and others, which shows that the sterilized exudates resulting from bacterial infections, when injected with small amounts of the bacteria which produced them, cause an increased susceptibility to infection with those organisms. Such exudates therefore contain substances ("aggressins") which overcome immunity. Towles shows by experiment that streptococci placed without injury into the vagina of Guinea pigs may produce a general infection, especially after injection of aggressin. Death occurred more rapidly in animals into which aggressin had been injected than in the controls.

The Journal of the American Medical Association.
Dec. 8, 1906.

1. *Clark, J. G. *Symptoms of Cancer of the Uterus.*
2. *Clark, J. G. *Report of Committee on Cancer of the Uterus.*
3. *Ries, E. *Operative Treatment of Cancer of the Cervix Uteri.*
4. *v. Rosthorn, A. *Radical Operation in Uterine Cancer.*
5. Noble, C. B. *Fibroid Tumors of the Uterus.* (To be continued.)
6. Holmes, B. *The Physical and Evolutionary Basis of Marriage.*
7. *Burr, A. H. *The Guarantee of Safety in the Marriage Contract.*
8. *Carstens, J. H., Marcy, H. O. *Education in the Prevention of Abortion and Illegitimacy.*
9. *Duhrssen, A. *The Guarantee of Safety in the Marriage Contract.*
10. *Howard, W. L., Keyes, E. L. *Protection of the Innocent.*
11. Brem, W. V. *Malarial Hemoglobinuria.*
12. *Denny, F. P. *Value of Small Quantities of Human Milk in Infantile Atrophy and Infectious Diseases.*
13. *Watson, W. T. *A Plea for a Square Deal for the Wet Nurse.*
14. Lydston, G. F. *Cases of Surgical Conditions of the Kidney.*

1. Clark urges more frequent examination and greater watchfulness to detect uterine cancer in its early stages. Irregular discharges should not be considered as a part of the normal menopause, still less a leucorrheal discharge. Ninety per cent of cases of cancer of the uterus occur between the ages of forty and fifty; 97% occur in women who have been pregnant. Irregular bleeding, especially after exertion or coitus, appearance or increase of a leucorrheal discharge, particularly if blood-tinged, or pelvic pain of more than a few days' duration, all demand investigation. On examination, any distinct necrosis of tissue is almost surely cancer; in any suspicious case, scrapings should be examined microscopically. Popular education as to the significance of bleeding should make earlier diagnosis possible in a great majority of cases.

2. The report of the committee calls attention to the fact that 95% to 97% of uterine cancers at present are not brought to operation until too late. A condensed account of the occurrence, symptoms and signs of the disease is given, with the suggestion that in all suspicious cases curettings be sent in 10% formalin to a competent pathologist.

3. Ries emphasizes the frequency of early involvement of pelvic lymph glands in cancer of the cervix. His method of operation consists in dissecting out the ureters to their full length in the true pelvis, followed by removal of the uterus in a large mass of pelvic connective tissue. The operation is compared to the amputation of a cancerous breast. The increased risk of this operation, he maintains, is justified by the results. He reports 8 cases, all operated upon more than five years ago. Of these two died practically on the table, and six are alive to-day.

4. Von Rosthorn also emphasizes the necessity of the most extensive possible removal of glands. He further advocates operation upon every case of recurrence which has not gone too far.

7. Burr calls attention to the prevalence of venereal disease in women contracted innocently from the husband.

Price says that 95% of abdominal sections for pelvic inflammations are the result of gonorrheal infection. Morrow says that 70% of his patients at the New York Hospital are respectable married women infected by their husbands. Vedeler says that 75% of sterile marriages are directly or indirectly due to gonorrhea in the husband. Yet no measures are taken to prevent this. The requirement of a health certificate before a marriage license is granted might do something to remedy the evil.

8–10. These papers are pleas for more general education of adolescents upon sexual matters, in order to forestall vicious suggestions and dangerous misinformation.

12. Denny describes his experience in giving human milk, even in small amounts, to infants who are not doing well on artificial feeding, particularly in infantile atrophy and in infectious diseases. He reviews the work of other authors who believe that human milk contains substances of the nature of ferments which may be necessary to stimulate the stomach to secrete, and also which maintain the bactericidal power of the infants' blood, as is not done by substitute foods. Striking gains in weight were obtained by means of one to three breast feedings a day, from women who came in from their own homes and at other times nursed their own children.

13. Watson speaks of the danger of syphilitic infection of wet-nurses employed to raise foundlings. He describes one case and refers to Bulkey's collection of 1,148 cases of chancre of the breast.

BRITISH MEDICAL JOURNAL.

DECEMBER, 1906.

1. *PHILIP, R. W. *The Public Aspects of the Prevention of Consumption.*
2. RIVERS, W. C. *The Comparative Frequency of Impaired Nasal Respiration as an Antecedent to Pulmonary and Extra-Pulmonary Tuberculosis.*
3. DIVER, E. W. *The Treatment of Phthisis by Sanatorium Methods.*
4. BRANCH, C. W. *A Case of Hemoptysis with numerous Spirochetes in the Sputum.*
5. SIBLEY, W. K. *The Treatment of Chronic Constipation.*
6. COLBECK, E. H. *The Use of Digitalis in Valvular Disease of the Heart.*
7. FORD, W. W. *A Consideration of the Poisons of Amanita Phalloides.*
8. MANWARING, W. H. *The Application of Physical Chemistry to Serum-Pathology.*
9. *MILLER, C. H. *Gastric Erosions.*
10. CLOWES, G. H. A. *A Study of the Virulence of Carcinoma in Mice, and of Experimental Immunity against Cancer.*
11. BASHFORD, E. J. *The Investigations of the Imperial Cancer Research Fund.*
12. *GAYLORD, H. G. *Evidences that Infected Cages are the Source of Cancer Developing among Small Caged Animals.*
13. BEEBE, S. P., EWING, J. *A Study of the Biology of Tumor Cells.*
14. BUSHNELL, F. G. *Structural Continuity in New Growths.*
15. HEARSEY, H. *The Rarity of Cancer among the Aborigines of British Central Africa; Squamous Carcinoma; Acinous Carcinoma: Physiological Reasons for Immunity from Cancer of the Breast; Columnar Carcinoma.*
16. *WRIGHT, H. *Beri-beri; Some Clinical Cases and their Bacteriology.*
17. NICOLLE, M. *Infection and Intoxication in Experimental Glanders.*
18. NICOLLE, M. *Hypersensibility and Immunity in Experimental Glanders..*
19. NOY, F. G., KNAPP, R. E. *Relapsing Fever and Spirochetes.*
20. BEATTIE, J. M. *Rhinosporidium Kinealvi (Minchin): a Sporozoon of the Nasal Mucous Membrane.*
21. KORTÉ, W. E. *The Virus of Small-pox and Vaccinia.*

1. Philip urges the need for a vastly wider organization and co-ordination of measures than has yet been realized, in the fight against tuberculosis. Such organization must include (1) notification of the disease, (2) a tuberculosis dispensary, (3) a hospital for dying patients, (4) sanatoria for early cases with a view of curing the disease, (5) colonies for the residence and guidance of patients in whom the disease is latent, or has been arrested, and for whom carefully selected and supervised employment is desirable. Tuberculosis dispensaries are no longer an experiment; they are a necessity in combating the disease. He describes in detail the Victoria Dispensary for consumption in Edinburgh, of which he is the head. It includes the visiting of patients in their own homes by (1) a qualified medical man, and (2) a specially trained nurse, (3) a volunteer Samaritan committee of ladies who help distressing cases and endeavor to find employment for others. This dispensary, as should always be the case, constitutes a center for the dissemination in the widest fashion of information regarding prevention and treatment. Hospitals for advanced cases are necessary not only for the benefit of such unfortunate patients, but also for the protection of the public at large. He gives the results of treatment of early cases in sanatoria and especially in the Victoria Hospital in Edinburgh. Colonies for consumptives who have left a sanatorium with the disease arrested so that they are able to work, should be established. Such colonies, he thinks, could be made self-supporting. At present in too many cases departure from the sanatorium means a relapse. The key to success lies in the co-ordination of all these measures.

9. Often after an operation for hematemesis nothing is found in the stomach to account for the bleeding. Such cases are called gastric erosions. In the stomach of dyspeptics there is a considerable increase in the glandular tissue, with over the gland follicles a thin mucous membrane. Under certain abnormal conditions these follicles become engorged, disentegrate and burst, leaving the basement membrane exposed to the action of the gastric juice and causing hemorrhges from the resulting process of digestion. If the mucous membrane is sufficiently normal it covers over the erosion; if not, the process goes on and a chronic ulcer results.

12. Gaylord reviews various so-called cancer epidemics which have been reported from time to time as occurring in cattle, fish, etc. He then describes how an epidemic of cancer developed among rats confined in a cage in which had been kept previously some rats known to be cancerous, placed there by Dr. Loeb. In this cage upwards of sixty spontaneous tumors have occurred in the course of three years. The fact that the location of the cage was frequently changed and the stock entirely renewed on at least one occasion without any permanent interference with the production of tumors, makes it apparent that the cage itself was the source of infection. This state of affairs leads to serious thought regarding malignant disease in humans.

16. Beri-beri is an acute infectious disease with an incubation of ten to twenty days, due to a specific micro-organism entering the body by means of the gastro-intestinal tract under defective hygienic conditions. He classifies it under (1) acute pernicious beri-beri; (2) acute and subacute beri-beri; (3) beri-beri residual paralysis. Of the cases examined bacteriologically by the writer, blood cultures were invariably negative; no result was obtained from the stool examination by means of agglutination. By other methods there was obtained from the stools in all but one case an anaërobic bacillus, four to nine microns long, positive, to Gram, resembling in all respects the organism obtained from the gastric mucosa in acute cases. He gives complete clinical descriptions of six cases, with autopsy findings of one that died. He believes that beri-beri is due to the bacillus here found but as yet it has not been isolated and found to fulfil Koch's laws.

THE LANCET.

DEC. 1, 1906.

1. *DUNN, P. *Tobacco Amblyopia.*
2. BLACKHAM, R. J. *Tropical Dysentery.*
3. MAS, J. B., PATON, L. *A Contribution to the Study of Phlyctenular Ophthalmia.*
4. NEDWILL, C. L. *Cerebrospinal Meningitis in the Sudan*
5. SAWYER, J. *The Indigestibility of Plummer's Pill.*
6. THOMPSON, J. A. *A Case of Lepra Tuberosa; Treatment with Chaulmoogra Oil; Approximate Recovery.*

7. *Barford, J. L. *A Case of Extensive Rupture of the Trachea with Complete Detachment of the Left Bronchus without External Injury.*

1. Beer, in 1792, first called attention to tobacco amblyopia, but it excited little interest till in 1833, Mackenzie again wrote concerning it. Dunn finds his cases among working-men who smoke (or chew) daily one fourth to one half oz. of shag. The other symptoms of tobacco poisoning are always present; nervousness, tremors, dyspepsia, etc. It is rare in youth, usually occurring in middle age. Mild forms of tobacco usually cause local irritating effects before they produce constitutional ones; " shag " does not act in this way. The patients generally say that they see things as through a fog, and that their vision has gradually grown worse. The treatment is to prohibit tobacco in any form absolutely and to cure the chronic gastritis. The prognosis in most cases is good.

7. A boy of four years was run over by a half-loaded van some twenty-five minutes before being brought to the hospital. The breathing was diaphragmatic and there was marked intermittent cyanosis of the head, neck and upper extremities, and cutaneous emphysema. The boy died in a few minutes and on autopsy there were found, three broken ribs, the left bronchus entirely torn from the trachea and a rupture of the trachea for one and one-half inches above the bifurcation.

The Edinburgh Medical Journal.

December, 1906.

1. Duckworth, Dyce. *The Dignity of Medicine.*
2. Mebille, H. G. *Primary Broncho-Pneumonia in Adults.*
3. *Meikle, J. H. *Persistence of Bacilli in the Throats of Convalescent Diphtheria Patients; a Clinical and Bacteriological Study of 300 Cases.*
4. De Meric, H. *Some Points in the Internal Treatment of Gonorrhea.*

3. Meikle, struck with the irregularity as to the time when diphtheria bacilli disappear from the throats of patients who have had the disease, has studied 300 cases clinically and bacteriologically to determine if possible some cause for this irregularity and some practical method for regulating the discharge of diphtheria patients. He concludes that (1) for the morphological diagnosis of diphtheria Neisser's stain gives the best results; (2) that the polar stained rod is the one nearly always got in blood serum after eighteen hours' growth; that (3) as bacilli disappear from the throat the long form is replaced by a short form; (4) that Hofman's bacillus is found in all varieties of cases but is more frequent during convalescence; (5) that in cases with staphylococci present, the diphtheria bacilli persist the longest, while (6) when streptococci appear early, the diphtheria bacilli go early; (7) that thorough and continued local treatment with antiseptics diminishes the virulence of the bacilli.

Annals of Surgery.

December, 1906.

1. *Phelps, C. *The Question of Early Operation in Cases of Intracranial Injury.*
2. *Crandon, L. R. G., and Wilson, L. T. *Fracture of Base of Skull. Analysis of 530 Cases with Particular Reference to Treatment and Prognosis.*
3. *Crile, G. *On the Technique of Operations upon the Head and Neck.*
4. *Scudder, C. L. *The Bone Metastases of Hypernephroma. A Report from the Massachusetts General Hospital Clinic.*
5. *Sherrill, J. G. *Cancer of the Gall Bladder and Ducts.*
6. Bowers, L. G. *Tumors of the Mesentery; with Report of a Case of Fibroma.*
7. Portis, M. M. *Why Gastro-Enterostomy is Not a Harmless Operation.*
8. *Le Conte, R. G. *Surgical Treatment of Perforating Gastric Ulcer; with Report of Three Cases, Two Acute and One Chronic.*
9. Martin, E. *Acute General Peritonitis without Demonstrable Lesion.*
10. Stewart, J. C. *Aneurismal Varix.*
11. Behan, R. J. *Coxa Vara.*

1. Following an exhaustive discussion of intracranial lesions, Phelps concludes as follows: (1) Epidural hemorrhage demands operation in such cases as do not obviously tend to spontaneous recovery, or in which a fatal issue is so imminent as to permit no question. (2) Meningeal contusion, when productive of symptoms, either cannot be diagnosticated from an epidural hemorrhage, or is indistinguishable from the diffuse cerebral edema with which it is always associated. A recognized intracranial hemorrhage may be expected to be of pial origin when associated with cerebral lesions, and will indicate operation when the cerebral lesion is regarded as of minor importance. (3) Cerebral contusion is (*a*) *limited*, showing no tendency to a fatal termination and never suggesting operation, or (*b*) *diffuse*. Of this latter there are two classes of cases; the first a vascular disturbance incapable of self-limitation, not markedly involving the integrity of the cerebral cells, but tending to destroy mechanically their function; the second, a progressive disintegration of cellular structure, an active process due to chemical changes, which natural forces prove insufficient to restrain. In this first class operation is theoretically indicated; in the second, in view of the origin and nature of the pathic changes, there is no reason to suppose a simple relief of pressure will stay their progress. In neither is it possible to fix the time when operation may so supplement natural forces and simpler remedial measures as to increase the patient's chances of recovery. (4) In mixed cases,— cerebral contusion complicated with pial or epidural hemorrhage,— operation should depend upon the estimated relative importance of the lesions; and the correctness of this estimate must depend upon the acumen and experience of the surgeon.

2. A valuable statistical paper which should be consulted in the original by those interested in the subject.

3. By temporary closure of the carotid, the bandaging of the scalp with rubber dam, and the use of the pneumatic suit to control the general blood pressure Crile has been able to secure complete control of the factor of hemorrhage during operations on the head and neck. By this method a careful accurate dissection is possible, in contradistinction to the " rough-and-ready conventional operation of the past."

4. From fifteen cases of hypernephroma with bone metastases, Scudder makes the following practical suggestions: (1) A bone metastasis may be the first sign of a hypernephroma. (2) A bone tumor in a middle-aged or elderly person should suggest a metastatic hypernephroma, for a primary bone tumor in elderly people is uncommon. (3) The bone metastasis from a hypernephroma may be the only metastasis. (4) A hypernephroma may exist without symptoms for a considerable period. (5) The kidney region should be palpated with great care in every case of bone tumor.

5. The fact that cancer of the gall bladder not infrequently follows gallstones is emphasized by Sherrill, his deductions being drawn both from the literature and personal cases. In view of this and other facts " failure to urge an early operation to patients suffering from disease of the gall bladder is reprehensible." Contra-indications to such operations are marked jaundice, a palpable nodulation in the gall bladder region, and ascites.

8. In the two cases of acute perforation of a gastric ulcer, Le Conte employed the following procedures: Suture of the perforation followed by an omental graft, dry sponging of immediate region and closure of wound; pelvic drainage by a glass tube through a button-hole incision; patient placed in bed in an almost sitting posture and continuous enteroclysis given. The drainage tube was removed on the second day. Both patients made a good recovery.

Deutsche Medizinische Wochenschrift, No. 48.

Nov. 29, 1906.

1. *Neisser, Bruck and Schucht. *Diagnostic Investigations of the Blood and Tissues in Syphilis.*
2. Schlimpert, H. *Two Cases of Congenital Syphilis with Spirochetes in the Eye.*
3. *Bab, H. *The Presence of Spirochetes in the Eye in Cases of Hereditary Syphilis.*

4. *STADELMANN, E. *The Treatment of Typhoid.* (Concluded.)
5. *SCHELLENBERG, G. *The Treatment of Constipation with Regulin and Pararegulin.*
6. DÜNNWALD. *The Use of Isopral in Obstetrics and Gynecology, with Remarks on Rectal Anesthesia.*
7. DENKER, A. *Treatment of Disease of the External Ear.* (Concluded.)

1. Neisser, Bruck and Schucht propose a new method for the diagnosis of syphilis, based on biochemical reactions. It has been shown by Gengou and Moreschi that if an antigen (the specific products of any organism) be brought in contact with the corresponding antibodies, and serum containing complement is added, the complement becomes absorbed and is no longer available. If now an inactivated hemolytic serum and the corresponding red corpuscles be added no hemolysis takes place, on account of the lack of complement. This is the so-called diversion (Ablenkung) of the complement. Wassermann and Bruck took advantage of these phenomena to show the presence or absence of antigen on the one hand, and of antibodies on the other. The authors have made extensive researches by this method on the presence of these two kinds of substances in syphilis of man and the ape, using extracts of syphilitic organs (fetus) to supply the antigen, and immune serum from monkeys experimentally infected with syphilis for the antibodies. In the blood of syphilitics the antibodies are contained in the serum, the antigen apparently is attached to the red blood corpuscles. If the presence of antibodies in the blood is to be investigated, the serum is brought in contact with a known antigen, complement is added in the shape of normal guinea-pig serum and then the hemolytic serum, and red corpuscles from the corresponding animal. If no hemolysis takes place, this shows that specific antibodies were present in the serum tested. The test for the presence of antigen is made in a similar way, using the red blood corpuscles of the patient instead of the serum, and bringing it together with known antibodies derived from the immunized ape. Using this method, the authors found that specific antigen and antibodies are practically never present in normal apes and in patients not infected with syphilis; out of 262 cases of syphilis in all stages, 65% gave positive reactions for either one or the other of these substances. They consider that a positive reaction for antigen shows that spirochetes still exist in the body, while a positive reaction for antibodies shows merely that the individual has been at some time infected with syphilis. Thus far, they have not been able to demonstrate the presence of specific antibodies in the normal man, although such are probably present in small amounts. They propose the use of this method for the diagnosis of doubtful cases, and also as a means of telling when the disease is cured. A negative reaction is of no significance. The method is a complicated and difficult one, and useful only in the hands of experienced investigators.

3. Serial sections of the eye in cases of still-born syphilitic infants, stained by the Levaditi method, showed the presence of spirochetes in cornea, iris, choroid, sclera, retina and the optic nerve. Bab's microphotographs are quite convincing, for the structures he represents could not possibly be nerve fibers or elastic tissue.

4. This article by Stadelmann is a good exposition of the usual modern treatment of typhoid fever. His statement that he has not heard of benefit from operations for intestinal perforation is rather surprising, as the recent literature contains a number of cases cured by operation.

5. Schellenberg obtained good results in constipation by the use of regulin and pararegulin. Regulin consists of agar to which a small amount of cascara has been added; pararegulin is liquid paraffin with the addition of cascara. These preparations were introduced into the treatment of constipation by Adolph Schmidt, and promise to form a welcome addition to the numerous methods of treating this common disease.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 48.
Nov. 27, 1906.

1. *ERB, W. *Statistics as to Gonorrhea in the Male, and Its Consequences for the Wife.*
2. *KREHL, L. *Cardiac Neuroses and "Weak Heart."*
3. BAUMGARTEN, P. *Experiments on the Effect of Passive Hyperemia on Infectious Processes.*
4. *SPIELMEYER, W. *Experimental Tabes in Dogs (Trypanosome-Tabes).*
5. FEHLING, H. *A Justification of the Conservative Operation for Fibroids.*
6. DÖNITZ. *The Extension of Spinal Analgesia to the Upper Part of the Body by means of posture.*
7. *HAMMER. *The Treatment of Phthisis with Tuberculin.*
8. KELLNER. *The Results of the Opium-Bromide Treatment in Epilepsy.*
9. GEIGEL, R. *Regurgitation of Urine into the Pelvis of the Kidney.*
10. BOSECK, K. *A Case of Myositis Ossificans Progressiva, Cured by Thiosinamin.*

1. Erb claims that the frequency of gonorrhea in men has been over-estimated, and finds that out of 2,000 cases of his private practice, only a little less than 50% had been infected. He agrees with Neisser in considering gonorrhea a curable disease, and can find no evidence in his statistics of the unfruitful marriages which this disease is said to cause. Out of 400 women whose husbands contracted gonorrhea before marriage, 94% remained free from pelvic disease, and of these, 68% had two or more children.

2. The expression "weak heart" should be confined to those cases where functional insufficiency exists, the result of damage to the muscle from mechanical, toxic or infectious influences. Those cases of disturbances of the heart in which there is no insufficiency are to be classed as nervous. Of these, by far the greater part, according to Krehl, are to be considered of psychogenic origin. There is still a third, small group of cases which will not fit into either category. These may possibly be due to injury of the nerve fibers within the heart, though this is purely hypothetical.

4. Spielmeyer, by infecting dogs with trypanosoma Brucei, produced lesions of the cervical posterior roots, the descending trigeminus root, and the optic nerve, identical with those of human tabes; the action was elective and no other regions showed degenerations. The lesions were most marked in Spitz dogs and poodles, dogs which may be considered as degenerates. These experiments show an interesting analogy between syphilis and the sleeping sickness, which is in accord with the similarity of the lesions in the latter disease and general paresis. Schaudinn claimed to have discovered in the eel a parasite intermediate between a spirochete and a trypanosome.

7. This article by Hammer deals with the revival of tuberculin as a cure for tuberculosis, and describes the method to be followed. The initial dose should not exceed 1–100 mgm.; for febrile cases it is better to start with 1–1000. The dose should be raised very gradually, keeping just within the dose that produces a decided reaction, until the dose of 1 gm. is reached, when the cure may usually be discontinued. The injections are made about twice a week, and the cure lasts perhaps six months; the treatment must be carefully modified to suit the individual. Hammer obtained very gratifying results in 60 cases, mostly in the first and second stages; his patients were ambulatory and received no other treatment. He used Koch's old tuberculin.

The Treatment of Acute Pleurisy. STEVENS (*Internat. Clinics*, series 16, no. 3) recommends the use of wet cups or leeches to relieve the pain of acute pleurisy; the relief he says is immediate and permanent in the vast majority of cases. Dry cups and strapping he finds of little use when the pain is severe. Drugs have little influence upon the disease; salicylates are sometimes of value, but more often not. To hasten the absorption of exudate, fly-blisters, purgatives and restricted ingestion of liquids are of some service, but any considerable effusion which is not receding at the end of a week should be removed by aspiration, even in the absence of urgent symptoms, for the purpose of hastening recovery. On account of the danger of subsequent pulmonary tuberculosis, the after treatment of every case should be that of incipient tuberculosis.

The Treatment of Certain Forms of Bronchitis. Patton (*Internat. Clinics*, series 16, no. 3) describes in contrast to the self-limited infections of the upper bronchial tract certain types of inflammation in the finer divisions of the bronchi, tending toward localization and a subacute or chronic course. These are due to infection by streptococci, staphylococci or influenza bacilli, and are situated most frequently in the posterior portions of the lower lobes. Their symptoms and signs closely simulate those of tuberculosis; certain exclusion of this may be impossible, but the basic situation, less degree of constitutional symptoms and the results of persistent sputum examination are of service in the differential diagnosis. In treatment the ordinary expectorants and cough sedatives are not indicated except in special cases. Iodine compounds seem to be of service, especially sodium iodide, gr. iiss 3–4 i. d. In the presence of asthmatic tendency fluid extract of grindelia robusta, mxx, or in spasmodic dyspnea fluid extract of euphoria pilulifera, mxx, is combined with this. General tonic treatment is indicated. In irritations of the upper respiratory tract the necessity of sedatives may be obviated by inhalation of the following spray: menthol, gr. xx, camphor, gr. xv, oil of eucalyptus, mxv, benzoinol to 3 oz.; climatic treatment may be tried in chronic cases.

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Correspondence.

THE POLLUTION OF THE BACK BAY.

506 Beacon Street, Boston.
Dec. 21, 1906.

Mr. Editor: Americans are proverbially long-suffering in enduring abuses of their rights. Patience, however, ceases under many conditions to be a virtue, and I am therefore desirous of placing before your readers a few facts, hoping that I may thereby rouse them to a sense of what is going on in our community which should receive the strong condemnation of every medical man who has his own interest and that of his fellow-citizens at heart.

For years the residents of Everett, Revere, Chelsea, East Boston, Somerville, and portions at least of Boston itself have been enduring the stench caused by the fumes of the New England Gas and Coke Company, now situated in Everett. Occasional spasmodic expostulations are read in the papers from long-suffering people who live in the suburbs near the nuisance. From time to time, when the wind is in a northeasterly direction, the nauseating, pungent smell reaches the nostrils of the people of the Back Bay, many of whom complain of it but are ignorant of its true source. Complaints have been made to the State Board of Health, but thus far no perceptible difference has been noticed, although the statement has been made that the Gas and Coke Company were expending large sums of money in trying to rectify this great source of annoyance to a large number of citizens. Whether it will be endured much longer without more active protest and a public demand for its abatement remains to be seen.

This condition of affairs, however, is to those residing near the Fenway and the Charles River as nothing compared to what has been endured during the past six or eight months, in consequence of a nuisance which is a disgrace and shame to any civilized community, the result of gross mismanagement and graft in the past among our city officials. The so-called "marginal conduit" which was finished about a year ago and which empties into the river just to the east of the Fenway Brook outlet at Charlesgate East, was intended to receive merely the overflow from the streets of Roxbury and Jamaica Plain in case of excessive rain to prevent flooding of the sewers. To the surprise and indignation of those living in the neighborhood, however, it was discovered last spring that the most disgusting sewage was pouring out into the river at all hours, and gradually but surely filling the channel with the filthiest sludge, which at low tide was exposed to view, and the fumes from which were so disgusting that it became necessary to close every window in the house for several hours out of the twenty-four, whenever the flats were exposed to view. I can give my personal testimony to the fact that silver, copper and brass articles have turned almost black in a single night from the fumes of sulphuretted hydrogen blown into the rooms of my house. It is perhaps needless to speak of the nausea, malaise, loss of sleep and nervous irritation caused by such a condition, all the result of gross mismanagement and stupid blundering in our municipal departments.

Vigorous correspondence with a view to stopping this nuisance , with the Mayor, superintendent of sewers, city and state boards of health, park department, and the Charles River Basin Commission, at first elicited the information merely that there was no definite knowledge anywhere as to the exact condition of the sewer system, but that any petty contractor who chanced to build a drain in Roxbury or Jamaica Plain could empty his sewage much more easily into Stony Brook than into the regular and proper channels. The result can be fully realized only by those who have lived near the Fenway and the Charles River during the last summer and autumn.

Dr. Durgin during the summer plead in vain at the City Hall to have money appropriated to rectify the nuisance, and finally the chairman of the Charles River Basin Commission, Dr. Pritchett, with characteristic energy, after a scientific investigation to determine the exact nature of the sewage, informed the Mayor that this absolutely illegal condition of affairs must be rectified or it would cause serious delay to the work of the commission upon the new dam, the construction of which was undertaken with the special provision in the law that no sewage whatever should be emptied into the Charles River Basin. Scientific investigation made last autumn under the auspices of Prof. S. C. Prescott, of the Massachusetts Institute of Technology, shows that until quite recently 5,000,000 gallons of sewage flowed through this conduit into the basin every twenty-four hours!

In consequence of this strong statement, the Mayor has, I have learned, at last taken steps to ameliorate conditions, and it is said that two thirds of the sewage has already been diverted into the proper channels. We have as yet, however, no certainty that the rest will be removed at once, for much remains to be done; and until all sewage is diverted from this conduit the same intolerable conditions will prevail for years, until the completion of the new dam, to the infinite detriment of the health and comfort of those who reside on the Back Bay.

The "Fenway scandal" so-called is a matter of history. According to the decision of our district attorney, Mr. Moran, no one is to blame, and the city has paid out $150,000 at least for clearing the Fenway Brook, and that done improperly. We now must spend more money to rectify this latest blunder, and, when the plan is perfected, of carrying this marginal conduit under the new esplanade to empty into the river below the new dam, again we shall suffer for the incapacity of our city officials unless prompt action is taken.

It is to be hoped that the whole matter will be turned over to the Charles River Basin Commission, with full powers to act. We should then have reason to believe that this abominable condition of affairs would be rectified scientifically and with economy to the city. Dredging of the flats should be resorted to as soon as the coldest weather ceases and before the spring. This would greatly mitigate the horrible conditions now existing, loathsome to senses of sight and smell. The whole country is at present engaged in a great fight against tuberculosis. Our papers are filled with articles preaching the vital importance of good ventilation, and the absolute necessity of fresh air in our homes. What a mockery it seems to spend vast sums of money in combating disease and then to quietly submit to such conditions as I have described, thereby defeating the very object we are struggling so hard to attain! I appeal, therefore, to every medical man and layman in this city to use his influence in the future, not only towards mitigating the present nuisance, but in insisting upon the necessity for intelligent management of our departments.

Respectfully yours,
Vincent Y. Bowditch, M.D.

[We have already referred to the gross nuisance of which Dr. Bowditch complains, Nov. 15, 1906, p. 585. — Ed.]

RECORD OF MORTALITY

For the Week ending Saturday, Dec. 15, 1906.

Cities.	Reported deaths in each.	Deaths under five years.	Cities.	Reported deaths in each.	Deaths under five years.
New York	1,061	366	Quincy	1	1
Chicago	598	180	Waltham	1	
Philadelphia	500	83	Gloucester	[illegible]	1
St. Louis	—	—	Pittsfield	[illegible]	1
Baltimore	187	31	Brookline	7	1
Cleveland	—	—	North Adams	1	[illegible]
Buffalo	—	—	Chicopee	2	1
Pittsburg	—	—	Northampton	[illegible]	1
Cincinnati	—	—	Medford	[illegible]	[illegible]
Milwaukee	—	—	Beverly	1	—
Washington	—	—	Hyde Park	[illegible]	2
Providence	88	25	Newburyport		
Boston	231	43	Leominster		
Worcester	41	16	Melrose	[illegible]	1
Fall River	35	14	Woburn	4	1
Cambridge	35	6	Marlborough	3	—
Lowell	28	15	Westfield	[illegible]	—
Lynn	27	5	Peabody		
New Bedford	18	7	Revere	4	1
Springfield	25	5	Clinton	[illegible]	[illegible]
Lawrence	17	7	Attleboro	6	1
Somerville	15	4	Adams	3	
Holyoke	10	7	Gardner		
Brockton	12	—	Milford	6	
Malden	8	2	Weymouth	4	[illegible]
Salem	14	4	Framingham	5	—
Chelsea	12	3	Watertown	1	—
Haverhill	10	3	Plymouth	5	—
Newton	5	1	Southbridge	4	2
Fitchburg	11	4	Wakefield	—	
Taunton	15	3	Webster	—	—
Everett	10	2			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 12, 1906.

Williams, L. L., surgeon. Detailed as member of Revenue-Cutter Service Retiring Board in Baltimore, Md., Dec. 10, 1906. Dec. 6, 1906.

Cofer, L. E., passed assistant surgeon. Temporarily relieved from duty at Honolulu, and directed to report at Ellis Island, N. Y., for temporary duty. Dec. 8, 1906.

Methewson, H. S., passed assistant surgeon. Directed to proceed to Detroit, Mich., for special temporary duty, upon completion of which to rejoin his station at Cleveland, Ohio. Dec. 6, 1906.

Amesse, J. W., passed assistant surgeon. Granted leave of absence for 7 days from Dec. 3, 1906, under paragraph 191 of the regulations.

Frost, W. H., assistant surgeon. Detailed as member of Revenue-Cutter Service Retiring Board in Baltimore, Md., Dec. 10, 1906. Dec. 6, 1906.

Cleaves, F. H., acting assistant surgeon. Granted leave of absence for 12 days from Dec. 13, 1906. Dec. 11, 1906.

Hume, Lea, acting assistant surgeon. Granted leave of absence for 30 days from Nov. 27, 1906. Dec. 5, 1906.

Lyall, R., acting assistant surgeon. Granted leave of absence for 3 days from Dec. 3, under paragraph 210 of the regulations.

Rodman, J. C., acting assistant surgeon. Granted leave of absence for 5 days from Dec. 12, 1906. Dec. 11, 1906.

Wakefield, H. C., acting assistant surgeon. Granted leave of absence for 7 days from Dec. 5, 1906, under paragraph 210 of the regulations.

Gibson, R. H., pharmacist. Granted leave of absence for 7 days from Nov. 26, 1906, under the provisions of paragraph 210 of the regulations.

Brown, F. L., pharmacist. Granted leave of absence for 10 days from Dec. 22, 1906. Dec. 11, 1906.

Thomas, A. M., pharmacist. Granted leave of absence for 5 days from Dec. 1, 1906, under paragraph 210 of the regulations.

BOARD CONVENED.

A board of medical officers was convened to meet at Seattle, Wash., upon call of the chairman, to make a physical examination of an alien reported to have trachoma. Detailed for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Assistant Surgeon H. G. Ebert, recorder. Dec. 12, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING DEC. 22, 1906.

G. P. Lumsdon, surgeon. Ordered to duty with Marine Recruiting Party, Dallas, Texas.

N. F. McLean, assistant surgeon. Detached from the Naval Station, Guam, L. I., and ordered home.

G. H. Barber, surgeon. Detached from the Naval Station, Olongapo, P. I., and ordered to the "Baltimore."

C. P. Kindleberger, surgeon. Detached from the "Baltimore," and ordered to the Naval Station, Olongapo, P. I.

R. Spear, surgeon. Detached from the Naval Station, Onacao, P. I., and ordered to the Naval Hospital.

APPOINTMENT.

Dr. E. H. Place has been appointed Assistant Resident Physician at the South Department of the Boston City Hospital.

SOCIETY NOTICE.

Surgical Section, Suffolk District Medical Society. — Surgical Section, Suffolk District Medical Society in conjunction with the Boston Medical Library Association. Meeting Jan. 2, 1907, John Ware Hall, at 8.15 p.m. Paper by Dr. M. H. Richardson, "On the Significance of Clinical Histories before and after Operative Demonstrations of the Real Lesion." Discussion by Drs. R. H. Fitz, J. B. Blake, G. W. W. Brewster and E. P. Joslin. Light refreshments.

J. C. Hubbard, *Secretary.*

RECENT DEATHS.

Charles Cushing Odlin, M.D., M.M.S.S., died in Melrose, Dec. 18, 1906, aged fifty-nine years.

Dr. Thomas F. McCleary, of Brooklyn, N. Y., died on Dec. 15, at the age of thirty-six years. He was born in Brooklyn, N.Y., and was graduated from the Long Island College Hospital in 1893. He was visiting surgeon to the Bushwick and Eastern District Dispensary.

BOOKS AND PAMPHLETS RECEIVED.

The Modern Treatment of Fractures. By Carl Beck, M.D. Reprint.

Skiagraphic and Therapeutic Factors in Tuberculosis of the Bones and Joints, with Some Reference to the Iodoform Treatment. By Carl Beck, M.D. Reprint.

Um die Weihnachtszeit nach Florida. Von Carl Beck. Reprint.

Experimental Studies on the Density of Calculi of the Urinary Tract. By Carl Beck. Reprint.

The George Washington University Publications. Medical Science Series. The Influences of American Surgery on Europe. By Carl Beck. Reprint.

Hygiène de l' Habitation. L' Office municipal de l'Habitation à Stuttgart et à Cologne. Par MM. A. Lévy-Dorville et A. Fillassier. Reprint.

Degeneration of the Erythrocyte. By John C. Da Costa, Jr., M.D. Reprint.

On the Use of the Temporal Fascia to Cover in Cranial Defects. By Carl Beck, M.D. Reprint.

Cholelithiasis. By Carl Beck, M.D. Reprint.

A New Method of Incision for Removal of the Breast. By Carl Beck, M.D. Reprint.

Transactions of the Third Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service. Washington, D. C., May 15, 1905. Washington. 1906.

Transactions of the Fourth Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service. Washington, D. C., May 23, 1906. Washington. 1906.

The Female Prostate. An Anatomico-Surgical Study. By Charles E. Barnett, M.D. Reprint.

Die Hilfsmassnahmen bei der Zerstörung von San Francisco. Von Carl Beck, M.D. Reprint.

Rectal Anastomosis of the Ureters. By Carl Beck, M.D. Reprint.

A New Method of Orchidopexy. By Carl Beck, M.D. Reprint.

On Extensive Separation of the Periosteum in Displaced Bone Fragments. By Carl Beck, M.D. Reprint.

Forty-second Annual Report of the Trustees of the Boston City Hospital, including the Report of the Superintendent upon the Hospital Proper, the South Department for Infections, the Relief Station at Haymarket Square, the Convalescent Home at Milton Lower Mills, etc. For the Forty-second Year, Feb. 1, 1905, to Jan. 31, 1906, inclusive. Boston. 1906.

Is Red Antimonial Rubber the Cause of Appendicitis? The Argument. By F. A. Pond, M.R.C.S., Eng., L.R.C.P. London. Liverpool: Edward Howell. London: Simpkin, Marshall & Co. 1906.

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